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ENTOMOLOGICAL NEWS

Tipula abdominalis.
(End of Larva.)

MAY, 1902.

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XIII. MAY, 1902. No. 5.

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Our plate represents a species from Bolivia, described by Mr. Weeks in the Canadian Entomologist, Vol. 23, p. 265, 1901.

Notes on a Eriocranid Larva.

BY W. D. KEARFOOT.

Our entomological literature is altogether barren of facts in regard to the larval habits or life history of any one of our American species of Micropterygidæ, in fact the perfect insect is a *rara-avis* and to be found in but few collections and in small numbers.

For this reason I wish to record the following preliminary account of the larva of at least one species. The only excuse for the publication of such incomplete data is the desire to inform fellow-workers of the discovery, so that they may make an effort to secure the larvæ and work out the life history during the coming spring and summer.

During early June or late May last year I found in several places about Montclair, N. J., the leaves of common chestnut

Castanea Americana, with very large blotch mines, the mines often extended entirely across the end of a leaf, or on one side of the mid-rib for nearly half the length of the leaf. By holding the leaf up to the light a broad, flattened apodous-like larva could be seen eating industriously, and when disturbed wriggling quite vigorously. When feeding the larva sweeps circles of 10 mm. or more radius, the anal end acting as a pivot, and the outline of the mine is a series of these semi-circles. The frass is deposited in fine curved lines.

Leaf-mining lepidopterous larvæ are unusual so early in the spring. For this reason, and also that I felt reasonably sure that I had a leaf-mining Coleopter, I paid rather scant attention to these larvæ other than to place the leaves in a jelly glass with a little moss and earth at the bottom and a gauze cover over the top. I noticed that within a day or two all the larvæ came out of the mines and had burrowed beneath the earth. They were bare and not enclosed in a case made out of a small part of the leaf.

The matter was allowed to rest here for several months. In October, when field work required less attention, I had time to learn something of the contents of several new accessions to my library, which included Stainton's "Natural History of the Tineina" and the first two volumes of J. W. Tutts' elaborate work entitled "British Lepidoptera." On Plate 3, Vol. XIII, of Stainton's work are beautifully drawn figures of three European species, showing moth, larva and mine, and as soon as I saw them I felt sure the identification of my chestnut miner was at hand. I got down my jelly glass and found a dozen or more small oval cocoons of rather tough texture and covered with particles of earth; upon opening some of these cocoons I found some of the larvæ had dried up and others had pupated and then dried up. Only one or two were alive; these I carefully put away, hoping to get the moth later, but at this writing all are dead, so it will be impossible to prove the species this year.

During the past few months I have been making a critical study of the pupæ of a number of Tortricidæ bred last year and sought the aid of Dr. Packard's first part of his "Monograph

of the Bombycine Moths." On page 62 of this work is shown the pupa of European *Micropteryx purpurella*. It also looked familiar, and I placed under the microscope the pupa of one of my chestnut miners and the mystery was solved.

If Dr. Packard's drawing had been made from my pupa it could hardly have shown a more striking likeness. All the limbs and organs are free, and across the front, just below the eyes, are the enormous cutting mandibles, the labrum is cleft on the lower edge and bears eight setæ ; on the epicranium are also four long setæ ; all of these setæ are fully as long as half the width of the pupa. On the square clypeus are the curious filamentarious tentacles referred to by Packard.

I succeeded in softening up one of the dried larva and inflated it and give the following brief description: 5 to 6 mm. long, flattened; segments 5 to 7, broadest, tapering to a narrow point at anal extremity ; head small, brown, somewhat like that of a *Nepticula* ; no pro-thoracic shield, but a small brown anal shield ; apodous.

I am at work on a detailed description of the pupa and larva and will make enlarged drawings of all details, but will defer publication until I can get fresh specimens to compare.

In Tutts' work, referred to above, Vol. I, p. 129 *et seq.*, is a most elaborate account of the European members of this group, citing the papers of Chapman and Waller, who have been the foremost investigators in this family. Mr. Tutt divides the group into two distinct and separate super-families : Micropterygidæ and the Eriocranidæ. The former includes the species whose larvæ feed on wet moss, and the latter those species whose larvæ are leaf miners. Lord Walsingham has erected a new genus for two of the American species, *i. e.*, *Epimartyria* (*E. pardella* Wlsm., and *E. auricrinella* Wlsm.) and which genus in some respects Tutt considers more archaic than *Micropteryx*.

It is quite probable that my species is *Eriocrania griseo-capitella* Wlsm., as for several years I have taken a specimen of this late in April or very early in May, or it may be another species which is yet unidentified, of which I took one specimen in midsummer two years ago.

Now that we have the clue I hope our American species will be rapidly overhauled and their life histories fully known. I will add that about the same time I found the chestnut miners I found similar mines and larvæ on oak; these may be the same species; I did not take care of them and made no notes, thinking it impossible they could be anything else than Coleopterous.

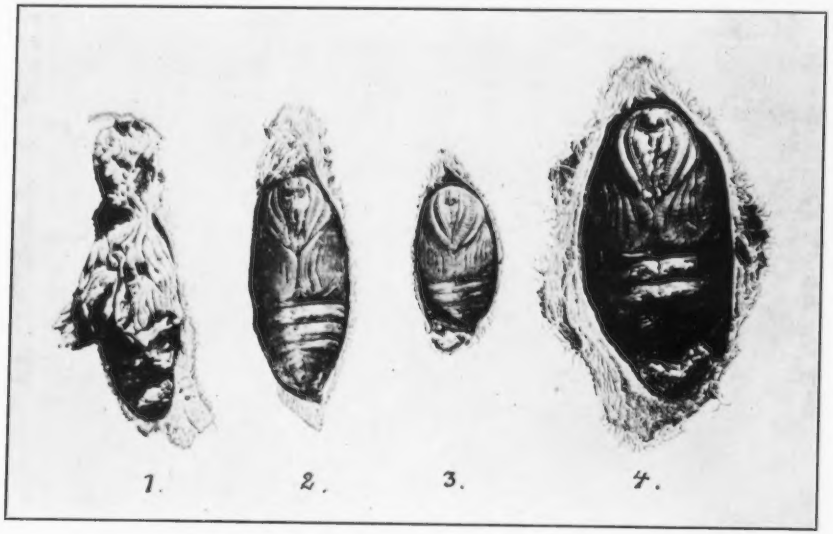
A word about the perfect insects of these group may be of interest. My first specimen was taken just about at dusk April 21. It doubtless was resting on or near the ground. I caught it as it was flying upwards in an almost vertical line, flight quite slow and seemingly laborious. The second specimen (and I think a different species) was taken about 8.30 p. m. about the middle of July on the wire mosquito screen enclosing my piazza, attracted by a lamp which was within. The third specimen was taken May 4, about 11 a. m. It is the same species as the first and was disturbed from the ground or low down on a tree trunk. As a violent wind was blowing it was impossible to observe its natural flight and it was captured with difficulty. I saw a fourth specimen resting on the bole of a small beech tree about five feet from the ground; the morning sun, about 11 a. m., was shining on it, and it sparkled like an emerald from the light reflected from the exquisite metallic green of its wings. I attempted to place a small cyanide bottle over it, but before my hand was within a foot of it, it jumped like a leaf hopper and was out of sight in an instant. Numbers one and three were captured (and number four seen) in a rather open woods, principally hard and soft woods and a great abundance of shrubbery, on the Watchung Mountains, back of Montclair, at an elevation of five or six hundred feet above sea level.

Cocoons of Samia Cynthia.

By HERMAN HORNIG.

(See Plate VI.)

Raising Lepidoptera from the egg to its final form as a "thing of beauty" is a pleasant experience, when the caterpillars are about by the hundred, but not so interesting when the leaves for food have to be carried from the suburbs of the



EMERGENCE OF MOTHS (HORNIG).

city to a small walled-up yard. The benefits which we derive from such labors are a knowledge of the mode of living of the larva in its different stages and the probability of getting perfect specimens without failures, due to parasites, as might be the case when we collect cocoons at random. We see the last cocoon-spinning caterpillar disappear into its silken shrine; we put on a date label of its last performance and fasten the cocoon on the board in such a manner that the fly will not need to pull the whole after him when he tries to emerge. In handling a number of cocoons during the winter we usually find some very light in weight: on opening the cocoon we perceive a shrivelled larva; the cause is poor nourishment. Where there are many caterpillars to be fed, there are always some which will get plenty to eat and some which will get little. Some larvæ, by falling from the top of the breeding cage to the bottom or being disturbed or wet during process of changing into another stage, will be injured and become sick and their appetite will be diminished. Those are the ones that die spinning the cocoon. But among so many there will be a few which will try to emerge and never rise above the thorax and die a miserable death. Our friends will say: "Why, you kept them too dry." If we think a moment we will see that this is not the case, because others kept in the same condition made their appearance perfect. They were not too dry, as Nature provided the chrysalis with moisture enough to enable the insect to change into the adult form and moisture enough is left to help soften the silk in the opening of the cocoon. If the cocoon had been kept too dry the moth never would have been able to come to the surface. The former cases occur mostly with *S. cynthia*, only one case was observed of *cecropia*. A large percentage of cocoons opened showed that *cynthia* larvæ make the loose ends of the silk very long and plentiful. Coming from a hotter climate it may be instinct or reason to shut out the heat of the first few spells of warm weather in spring as much as possible. As a rule our *cecropia* and *promethea* fly earlier than *cynthia*. A distinguishing mark between the *cynthia* and *promethea* cocoon is the flatness at emerging point of the latter, less silk and shorter ends. If the moth, in pushing its way through, is

rather slow about it the under portion of the body, full of of young life, while growing rapidly, will be so large in a short time that it is impossible to get through the opening and the moth falls a victim. Illustration No. 1 shows this plainly. The cocoons in the illustration are stripped of the outer covering so as to show the amount of silk at opening end in a plain manner. No. 2, *S. cynthia*, before emerging; No. 3 *promethea* and No. 4 *cecropia*.

A New Coccid from California.

By S. I. Kuwana, Stanford University, Cal.

Pseudolecanium disticlium n. sp.

Adult female:—Length varying from 3 to 4 mm., width 1 to 1.1 mm.; ellipsoidal in form, usually flat; pinkish brown in color, shiny, the posterior segment darker color; thinly coated with white cottony wax.

Boiled in K O H, the female becomes transparent, with the exception of the mouth parts, antennæ and the posterior segment, which are golden brown; mouth parts well chitinized, rostral loop long; antennæ short, conical, consisting of two segments, subequal in the length, .41 mm. long, the terminal segment bearing six or more hairs; the two pairs of spiracles are large and prominent; a large number of glands varying in size, all over the body, which are more numerous around the spiracles; the posterior segment strongly chitinized; the posterior margin of the body with no cleft, and bearing four spines; anal ring large, without hairs.

First Larval Stage:—Length .5 mm., width .2 mm.; pale pink in color; elongate ellipsoidal in form; segments very distinct; sides nearly parallel, with no capitate spines on the margin of the body; eyes red; mouth parts very large; antennæ close to each other, each consisting of six segments, and about .12 mm. long, segment 6 longer than 4 and 5 together, segment 4 shortest, formula, 6, 1, 2, 3 (4, 5); the three pairs of legs are subequal, coxa as wide as long, trochanter large, bearing a single long hair, femur large, convex on the outer margin, tibia and tarsus about equal in length, each bearing a

few spines, digitules on tarsus long, thread-like, knobbed, digitules on claw short and stout, knobbed; posterior margin of the body with two long hairs and two spines at the base of each hair; anal ring with four spiny-hairs.

Habitat. Found by the writer on *Distichlis maritima* in salt marsh near Palo Alto, California, Dec. 20, 1901. The female lives under the sheathing base of the host plant.

Type in the Entomological Collection of Leland Stanford, Jr. University.

Three species of the genus *Pseudolecanium* have been heretofore known, and they are recorded from the following localities:

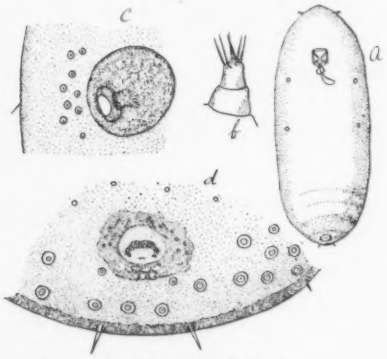


FIG. 1.—*Pseudolecanium distiellium.*
a. Ventral aspect of female.
b. Antennæ of the same.
c. A spiracle of the same.
d. Ventral aspect of the last segment of the same.

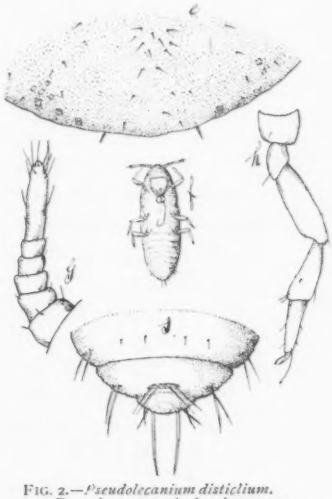


FIG. 2.—*Pseudolecanium distiellium.*
e. Dorsal aspect of the last segment of female.
f. Ventral aspect of the first larval stage.
g. Antenna of the same.
h. Leg of the same.
i. Posterior abdominal segments of the same.

1. **Pseudolecanium tokionis** Ckll.

Tokyo, Gifu in Japan; and Stanford University campus, California.

2. **Pseudolecanium californicum** Ehr.

Mountain View, California; Manhattan and St. George, Kansas.

3. **Pseudolecanium obscurum** Parratt.

Lost Springs, Parsons, Fredonia and Green Mound, all in Kansas.

The following measurements and formulæ of larval antennæ will assist in the recognition of the known species of the genus:

MEASUREMENTS OF LARVAL ANTENNÆ.

SEGMENTS OF ANTENNÆ.	1	2	3	4	5	6
Pseudolecanium tokionis. . . .	28	14	33	22	30	32
Pseudolecanium californicum .	16	10	22	17	17	28
Pseudolecanium obscurum. . .	14	7	20	15	14	21
Pseudolecanium disticlium. . .	17	16	14	10	10	22

FORMULÆ OF LARVAL ANTENNÆ.

Pseudolecanium tokionis, 3, 6, 5, 1, 4, 2.
" *Californicum*, 6, 3, (4,5) 1, 2.
" *obscurum*, 6, 3, 4, (1,5) 2.
" *disticlium*, 6, 1, 2, 3, (4,5).

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1896. Cockerell—Psyche Supp., p. 19.

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1900. Kuwana—Cont. Biology, Hopkins Seaside Lab., Stanford Univ., XXV, p. 403-4.

Pseudolecanium (Niderlaria) **californicum** Ehr.

1899. Ehr.—Can. Ent., Vol. XXXI, No. 5, p. 103.

1900. Parratt—Kans. Agr. Exp. Station, Bul. No. 98, p. 145.

Pseudolecanium obscurum Parratt.

1900. Parratt—Kans. Agr. Exp. Station, Bul. No. 98, p. 144.

ALSTEAD SCHOOL OF NATURAL HISTORY, SESSION OF 1902.—A course in Zoology, with special reference to Entomology, will be given by Mr. W. L. W. Field. Session opens Tuesday, July 1st, and closes August 4th. The fee, covering board, tuition and excursions, will be $150. The session will be held at Alstead Centre, New Hampshire. Apply to W. L. W. Field, at Milton, Mass.

Lithurgopsis, a New Genus of Bees.

By WILLIAM J. FOX.

A recent letter from Mr. T. D. A. Cockerell suggested that *Lithurgus oblongus* Fox, described from Lower California, was possibly not a Lithurgus, but a species of Megachile. I find on examining the type that, while having a strong superficial resemblance to species of Lithurgus, *i.e.*, in the laminate, or projecting face, *oblongus* is really a Megachile, the first hind tarsal joint being flattened as in the latter genus and not cylindrical as in Lithurgus, and its labial palpi are 4-jointed. As the name *oblonga* is preoccupied in Megachile it is necessary to propose a new name for *Megachile* (=*Lithurgus*) *oblonga* Fox, and I herewith suggest the term *longula*.

Historically, the genus *Lithurgus* is not without interest. Latreille, 1825,[1] indicates *Centris cornuta* Fab. (=*Megachile cornuta*) as the type of a genus, to which he gives a French name, Lithurge. In the same year Lepeletier de St. Fargeau[2] refers to Latreille's genus Lithurge without Latinizing it. Berthold, 1827,[3] edited a German translation of Latreille's *Familles, etc.*, on page 467 of which the Latin term Lithurgus is used for the first time. As vernacular names have no standing in nomenclature, obviously the genus should date from the first use of a Latin term of it. Therefore, the name of the "stone-bees" should henceforth stand as Lithurgus Berthold, 1827, and not Latreille, to whom the generic term has heretofore been credited.

The references to Lithurge Latreille which I have found are in almost every instance either incorrect or incomplete. Boyer de Fonscolombe, 1834,[4] refers to the right work, but curiously enough says "tom. 2, p. 350," there being but one volume, and the term occurring on page 463. Later writers as Lepeletier de Saint Fargeau, F. Smith, and Freise in 1899, refer to

[1] *Familles naturelles du règne animal*, Paris, 1825, p. 463.

[2] *Encyclopedie methodique, Insect., X, p. 795, 1825.* The title page to this volume is dated 1792, but the work having been issued in parts, page 795 did not appear until 1825.

[3] *Natürliche Familien des Thierreichs mit Anmerkungen und Zusätzen von Dr. Arn. Ad. Berthold, Weimar*, 1827.

[4] *Annales de la Société Entomol. de France, T., III*, 1834.

Genera Crust. et Insect., II, p. 350, 1809. In this work, volume 2 does not at all relate to Hymenoptera and is dated 1807. Dalla Torre, 1896, while giving the proper reference, queries the page, as though the work had not been consulted by him.

Now comes another question of importance. Freise, 1899,[5] says under Lithurgus, "An den einfachen Beinen fehlt das Pulvillum," presumably referring to both sexes. Mr. Wm. H. Ashmead writes me that no pulvillus exists in either sex of two genuine species of European Lithurgus, although he does not indicate which species; and Mr. T. D. A. Cockerell informs me that he has examined a male specimen of *Lithurgus atratus* from India, and failed to find a pulvillus.

It is well known that two of our species, [*Lithurgus*] *gibbosus* and *apicalis* have in the male a distinct pulvillus; so from the evidence at hand it is clear that these species cannot be included under Lithurgus Berth. According to Ashmead's classification of the bees they would not come under the same subfamily as Lithurgus, or the two sexes would fall into different subfamilies, which, it seems to me, is evidence of the instability of classificatorial schemes whose main virtue seems to be convenience, or an artificial rather than a natural arrangement.

The new genus may be characterized as follows:

LITHURGOPSIS gen. nov.

General appearance of Lithurgus and Megachile. Maxillary palpi 3-jointed, the joints of almost equal length, the first subtriangular, or in other words, much widened apically. Labial palpi 3-jointed, the first joint broad, about $\frac{1}{4}$ the length of the the second, which at base is of equal width to the first, but tapers to a slender apex, the terminal joint minute and clavate. In the male sex is a distinct pulvillus, which is absent in the female. Tarsal claws in male cleft; in the female squarely toothed within basally.

Type [*Lithurgus*] *apicalis* Cresson. This is selected as the type because I have dissected the mouth parts, which a limited series of *gibbosus*, the older species, did not permit me to do.

Our species of Lithurgopsis may be tabulated as follows:

[5] *Die Bienen Europes, Theil V, p. 6.*

FEMALES.

Facial prominence entire; pubescence of sixth dorsal abdominal segment black . . . . . **gibbosus.**

Facial prominence not entire, consisting of two widely divergent teeth or prongs.

Pubescence of sixth dorsal segment fulvous brown, varying to purplish black; ventral scopa yellowish . . . . . **apicalis.**

Pubescence of sixth dorsal segment black; ventral scopa whitish . . . . . **echinocacti.**

MALES.

Face and clypeus closely punctured; sixth abdominal segment with black pubescence (except the apical white margin) . . . . **gibbosus.**

Face and clypeus sparsely punctured; sixth abdominal segment with yellowish white pubescence . . . . . **apicalis.**

From the material at hand I am not able to satisfy myself that the several forms or varieties mentioned are really such or distinct species. A large series from various localities is needed to settle this matter.

1. **Lithurgopsis apicalis** (Cresson).

Lithurgus apicalis Cresson, Rep't Expl. and Surveys W. of 100th Merid. (Wheeler), Vol. V, p. 724, 1875. ♀.

Lithurgus apicalis Cockerell, Amer. Naturalist, Vol. XXXIV, p. 488, 1900. ♀ ♂.

Lithurgus gibbosus Cockerell (non Smith), ibid, p. 487, ♀ (♂?).

Colorado; New Mexico; Arizona. The Arizona examples have the pubescence of sixth dorsal segment blackish, but a tendency to blackness is also shown in some Colorado examples.

Mr. Cockerell's *gibbosus* is not the same as Smith's, and is what I consider a form of *apicalis*. This form with dark pubescence on sixth dorsal abdominal segment varies within itself; otherwise I would be inclined to regard it as distinct. Whether the male of this form, called *compressus* Smith, by Cockerell, is really *compressus* or not I cannot say, not having seen specimens.

A series of three males, from Colorado, are more hirsute, the pubescence pertaining more to yellowish than to grayish, as in the typical form, and the fulvous-brown pubescence of sixth segment is replaced by light yellow or grayish yellow.

2. **Lithurgopsis echinocacti** (Cockerell).

Lithurgus echinocacti Cockerell, Ann. Mag. Nat. Hist., p. 453, December, 1898, ♀.

New Mexico. Mr. Cockerell has sent me a single specimen of this species. The specimen is slenderer than most *apicalis*, the ventral scopa is white and the wings clear, not margined apically with fuscous, though in other respects approaching the form of *apicalis* with darkly haired sixth segment. Mr. Cockerell describes this pubescence as "purplish-ferruginous," but in the specimen he sends me it is quite black, perhaps somewhat purplish, which may indicate that here also, as in *apicalis*, there may be considerable variation.

3. **Lithurgopsis gibbosus** (Smith).

Lithurgus gibbosus Smith, Catal. of Hymen. Insects in British Museum, Part 1, p. 147, 1853. ♀.
Lithurgus compressus Smith, ibid. ♂.

Georgia; Florida; Texas. Mr. Cockerell's record of *gibbosus* in New Mexico is erroneous, as I have shown elsewhere.

The author desires to express his thanks to Messrs. Henshaw, Ashmead and Cockerell for favors received in connection with the present paper.

Notes on Coleoptera No. 2.

By GEORGE A. EHRMAN, Pittsburg, Pa.

Cychrus andrewsii Harr.

Some time ago I captured a large female of this handsome as well as rare species in Brown's woods, which is very peculiar. The striæ of the elytra are replaced by an interrupted, uneven and semi-tuberculate surface, very similar to *Carabus intricatus* of Europe, otherwise it is the same as the regular Pennsylvania form of this species.

Pterostichus vinctus Lec.

On Sept. 24th, 1900, I captured a very interesting example of this species at Baldwin Station; the specimen is a female in the genitalia, but the right tarsal joints are male on the fore foot, while the left fore foot tarsal joints are female in character.

Platynus extensicollis Say.

Of this, though not rare, yet a very pretty carabid, I took quite a number in damp localities in dried-up creeks, but by chance I came onto a little sunny embankment, or "wash-out,"

as the farmers of Washington County call them, and by digging down the loose soil and small stones I took this species by the dozen. This was on Oct. 13th, 1900. No doubt they were preparing their habitation and winter quarters.

Odontœus filicornis Say.

On Oct. 30, 1900, in looking for *Platynus extensicollis* again, I discovered a fine perfect female of this rare beetle. Hitherto my captures of this rarity were at the electric lights; thus by finding this female in such a position I believe that they have the same habits in the larva state as the *Lachnosterna*, viz.: feeding on the roots of grass and other vegetation.

Nyctobates pennsylvanicus De G.

On Oct. 13th, I found a specimen of this our common tenebrionid and which is oftentimes confounded with the rarer *Merinus lævus*. It has a deformed middle leg on the left side. The leg from the tibial joint is twisted and bent outwardly like a crook or hooked walking stick, and by close examination of this limb I find that this specimen was born without a foot (tarsi and tarsal claws) on this deformed member.

A New Moth from Alaska.

By Henry Skinner.

Psychophora fasciata n. sp.

Male.—Antennæ bipectinate. Head, thorax, abdomen and legs clothed with brown hair. Primaries light brownish gray and semi-translucent, with a brown band or fascia, 4 mm. wide, extending from the costa to the interior margin. At the middle of the outer side the band is convex, almost making a point. On the inner side it is correspondingly concave. The secondaries are white, translucent and rounded, without spot or marking. The neuration of the secondaries is brown and shows distinctly.

The undersides of primaries and secondaries are immaculate and of a sordid white; under a lens they appear to be covered with an admixture of whitish and brownish scales.

Female.—Antennæ, to the unaided eye, appear simple, but under a lens they are shown to be made up of numerous min-

ute joints partly covered by hair. Moniliform would express their character if it were not for the fact that they are not round. Primaries narrow as compared with those of the male and more produced at the apex. In color they are light brownish gray. The darker fascia crosses the wing as in the male, but it is far less distinct or differentiated from the remainder of the wing. The secondaries are small and almost quadrate in shape, the square narrowing as the body is approached. The undersides are immaculate, with the neuration more distinctly shown than above.

♂ Expands 26 mm.

♀ Expands 20 mm.

Described from quite a number of males and one female taken at Point Barrow, Alaska, July 13, 1898.

The genus *Psychophora* was proposed by Kirby (A Supplement to the Appendix of Captain Parry's Voyage for the Discovery of a Northwest Passage in the years 1819–20. London, 1824), who placed the species described, *sabini*, in the genus *Bombyx* Fab., but suggested the genus *Psychophora* for the species. The species *sabini* is again referred to by Curtis (Appendix to the Narrative of a Second Voyage in Search of a Northwest Passage, etc., by Sir John Ross. London, 1835) who redescribes the genus and species. *Sabini* is figured by Curtis on Plate A, fig. 12. Curtis says: "Mr. Kirby's description being incomplete, from his want of perfect specimens, I have endeavored to supply the deficiency by giving the generic characters." Dr. Packard in his Geometrid Moths places *sabini* in the genus *Glaucopteryx*, but this species seems to have little if any relationship to the other species he includes in *Glaucopteryx*. The late Dr. Hulst placed the genus *Psychophora* in the Geometridæ, subfamily Hydriominæ.*

Staudinger and Rebel, in their recent catalogue of the palæarctic fauna, place *sabini* as a variety of *Larentia frigidaria* Gn. This seems very curious, as *sabini* was published in 1824 and *frigidaria* in 1857. Dr. Hulst cites P. *phocata* Möschler as a synonym of *sabini* Curtis. *Phocata* is figured in the Wien Mts., 1862, p. 137, T. 1, f. 8, but this fig. does not seem to show

*Trans. Am. Ent. Soc. XXIII, p. 290.

that the species belongs to *Psychophora*, but is geometrid in character.

Specimens of *Psychophora fasciata* were submitted to Drs. Smith and Dyar and the former thought they were Bombycids and the latter Noctuids. From some recent correspondence with Dr. Smith it would appear that what Dr. Hulst had under *Psychophora* were all true Geometridæ, as Dr. Smith says: "There is no specimen in the Hulst collection that agrees with the insect that you gave me."

The genus *Psychophora* was proposed and described by Kirby, and later more fully described by Curtis, and there is no doubt about the genus or what insects were meant, as they are very characteristic generically, at least.

I am inclined to agree with Dr. Smith that *Psychophora* represents a Bombycid genus and that all the mix-up in the literature has been brought about by considering *Psychophora sabini* a geometrid moth.

See Pagenstecher, Fauna Arctica, Bd. II, p. 323, 1901.

Remarks on Tephronota Ruficeps and Description of a New Species.

By Chas. W. Johnson.

Tephronota ruficeps van der Wulp.

Hernia ruficeps v. d. Wulp, Tijdschr. v. Ent. IX, 156, pl. V, fo. ii.
Tephronota humilis Loew, monogr. etc., III, 121, pl. VIII, f. 24, 1873.

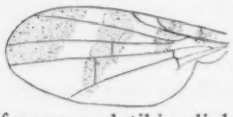
In his monograph Loew did not adopt van der Wulp's name because it was preoccupied by Fabricius. But as Baron Osten Sacken has stated: "This cannot be sustained, as neither of the two genera named *Hernia* or *Tephronota* existed at the time of Fabricius." Nor is there an older *ruficeps* referable to this genus.

The species seems to be confined to the States bordering on the Atlantic from New York to Florida. It has also been collected by Belfrage in Texas. Specimens were taken at Georgetown, Fla., May 9, 16; Tifton, Ga., June 11, (Pilate); Boykins, Va., June 10; Jamesburg, July 4, and Buena Vista,

N. J., July 10. It is usually captured in beating the shrubbery on low sandy ground.

Tephronota canadensis n. sp.

Front and vertex bright yellow, bordered with white pollen or sheen, which in certain lights seems to extend around the entire margin of the eye; face and antennæ yellow, the third joint above slightly brownish; occiput black and covered with a grayish pollen. The entire thorax black and covered with a grayish pollen, showing slight indications of two dorsal stripes; scutellum brownish black; abdomen a shining black; legs blackish, the ends of the femora and tibia slightly yellowish, the amount of yellow on the tibiæ often varying considerably; tarsi yellow, the terminal joints somewhat darker; wings white hyaline, marked with three black bands as shown in figure. Length 3 mm.



Six specimens collected by Mr. G. Chagnon, at Rigaud, Prov. Quebec, Canada, July 28, 1901.

This species is readily distinguished from the preceeding by its blackish legs, and greater extent of the third or outer band on the wing.

In working over the Ortalidæ I find that the genus *Stictocephala* Loew, 1873, is preoccuped in Homoptera (1869), I therefore propose the name *Pseudotephritis*.

Dragonflies (Odonata) from the Magdalen Islands.

E. B. Williamson.

On June 23 and June 30, 1901, Dr. D. A. Atkinson collected 167 dragonflies at Grand Entry, Magdalen Islands, Quebec. Six species are represented in the collection. The cosmopolitan character of the Odonatological fauna of these islands as shown by Dr. Atkinson's collecting justifies the publication of this brief list.

The Magdalen Islands are between 47° and 48° N. Lat. and 61° and 62° W. Long., near the middle of the Gulf of St. Lawrence, about 54 miles from Cape Breton Island and only a few miles farther from Prince Edward Island. They form an

elongated **C** with the open side slightly south of east, the maximum length in a straight line being about 40 miles. Grand Entry, where Dr. Atkinson collected, is at the terminus of the upper curve of the **C**.

(1.) **Enallagma hageni** Walsh.

Grand Entry, June 30, 1901, 41 ♂. This species ranges approximately between 40° and 47° N. Lat. and 60 and 100° W. Long. Specimens from Grand Entry average larger than Indiana and Ohio specimens.

(2.) **Enallagma cyathigerum** Charp.

Grand Entry, June 23, 1901, 5 ♂; June 30, 14 ♂. This species, with its races, is known from Northern Asia, Europe and North America. How definitely the races may be recognized I do not know. *Hageni*, *cyathigerum* and *calverti* are a group of very closely allied species. In North American *annexum*, as identified by authors, occurs with *hageni* and *calverti* in Maine and Massachusetts. *Calverti* appears east of the Great Plains in one other State, Indiana, in which *hageni* has also been taken. *Annexum* and *hageni* are reported for New Hampshire. *Hageni* has not been taken west of the Great Plains. *Calverti* and *annexum* are reported for Washington and Wyoming. *Annexum* is also recorded for California. In North America north of Lat. 45° *annexum* has been reported generally, *calverti* only in the extreme west, while *hageni* is known only from Quebec. It may be that *annexum* and *calverti* have been confused by earlier authors. Twenty-two female *Enallagmas*, not specifically determined, were taken at Grand Entry, June 30.

(3.) **Agrion resolutum** Hagen.

Grand Entry, June 23, 1901, 4 ♂; June 30, 34 ♂, 11 ♀. This species has hitherto been reported from Canada west of Long. 95°. Specimens from Magdalen Islands amply illustrate, as variations, the different points in Hagen's description of the form *servum* from Fort Resolution (Selys Syn. des Agr. Le Grand Genre Agrion, p. 1264 or 154). Of the differences pointed out by Selys between *resolutum* and the European *A. hastulatum*, the coloration of the rear of the head and the shape of the hind lobe of the prothorax seem most

valuable, judging from the material before me. The post-occipital spots in *resolutum* may be dentate, deeply crenate, or entire behind. Only rarely the lateral spot on abdominal segment 2 of the male is separated from the dorsal spot and then only by a mere line of blue in *resolutum ;* in *hastulatum* the lateral spot is variable in size, but is well separated from the dorsal spot in any case. In *resolutum* ♂ ♀ the rear of the head is entirely pale yellow ; in *hastulatum* ♁ ♀ the region about the foramen is black, and this may extend very nearly to the eyes. I can detect little if any difference in the color of the pterostigma. The abdominal appendages of the males, on the other hand, offer clear differences. In *resolutum* ♁ the lower branch of the superiors is slenderer, as long as the inferiors, and with a distinct knob at the end ; in *hastulatum* ♂ the lower branch is shorter, heavier, only slightly enlarged at end, and largely concealed behind the inferior appendages. The inferior appendages of *resolutum* ♁ are much smaller than those of *hastulatum* ♁ not concealing the lower branch of the upper appendages, apex distinctly bifid, the two branches equal in length, in *hastulatum* ♂ not so distinctly bifid, the upper branch the longer. [The hind margin of the prothorax is rounded in both sexes of *resolutum*, angulate in the middle in both sexes of *hastulatum ;* a small pale streak on each side of the dorsal black of the prothorax of *resolutum* is absent in *hastulatum*. I take advantage of this opportunity to add a new locality for *resolutum*, viz. : Volga, South Dakota, whence I have a male taken June 26, 1889, and sent me by the late Judge P. C. Truman.—P. P. CALVERT.]

(4.) **Æschna juncea** L.

Grand Entry, June 30, 1901, 2 ♁, 5 ♀, 4 of the females teneral, one reared. This species occurs over northern portions of Europe, Asia and North America.

(5.) **Leucorhinia hudsonica** Selys.

Grand Entry, June 30, 1901, 11 ♁, 4 ♀. Canada ; Massachusetts.

(6.) **Libellula quadrimaculata** L.

Grand Entry, June 30, 1901, 12 ♁, 2 ♀. Northern Hemisphere, northern.

Notes on Collecting Coleoptera in Wyoming and Utah.

By W. KNAUS, McPherson, Kansas.

(Continued from page 115.)

My next stop was at Medicine Bow, fifty miles northwest of Laramie. This station was my closest railway point to the old station of Aurora, on the edge of Lake Como, where I wished to look for *Cicindela willistoni* Lec. From Lookout to Medicine Bow the old railway line was abandoned and taken up, and one must walk back east eight miles from Medicine Bow to reach Lake Como, situated in a small mountain basin. In the eight miles walk you do not see a single habited house, but at Lake Como is the Berry ranch, near the abandoned station site. A brisk walk from Medicine Bow, Sunday morning, June 23rd, with a few stops to look for insects under the old ties along the dismantled road-bed, brought me about eleven o'clock to the southwest point of the mountain lake, covering something near one hundred and sixty acres. On the maps the lake is nameless, but is known locally as Lake Como. The water is charged with alkali and has a soapy appearance. From the old road-bed a small rivulet leads into the lake some seventy-five yards away, and the alkali wash towards the lake is either bare of vegetation or scantily covered. On this alkali soil near the edge of the lake, S. W. Williston, the latter part of June, 1877, while hunting fossils in the adjacent mountains for Yale College, accidentally found a species of Cicindelidæ that was undescribed. Dr. Leconte described the species as *willistoni*, naming it for the discoverer. Some fifty or sixty specimens were taken by Prof. Williston, and up to this year, with the possible exception of a dozen specimens, this has remained a record of the catch of this species.

On my arrival at the lake I was not long in locating its haunts, and soon had my first specimen in the cyanide bottle. Collecting was good until 3.30 P.M., when the lateness of the hour and the continued use of my net had reduced the numbers visible to an occasional specimen. I found they occurred only over a small area of bare or scantily reed-covered white alkali soil,

fifteen feet wide by one hundred feet long, and about six to ten feet back from the waters' edge. I went over the ground carefully along the lake for over a quarter of a mile, but found only a single specimen. They would not stay on the red soil, or on soil covered with grass or other vegetation. The movements of this species are different from any that have come under my observation. They run rather clumsily, are slow on the wing, and rarely fly further than ten or twelve feet; often only six or eight feet. When the net is thrown over them they seldom fly up into the net, but almost always remain on the ground, often not moving until picked up. As they were not copulating, I inferred that the middle of their season was about June 10th, extending from say, May 10th to July 10th. No other species was seen in this locality, which has an elevation of about six thousand seven hundred and fifty feet. *Willistoni* is assigned in Henshaw's list as a variety of *fulgida*, but from my observations on their habits and a comparison of the species themselves, I have no hesitation in pronouncing it a distinct and valid species.

Other species taken at Lake Como were, *Bembidium insulatum* Lec., and *ephippiger* Lec., a species of *Pterostichus*, a species of *Harpalus* and four specimens of a handsome *Eleodes* apparently undescribed.

At Medicine Bow, collecting by beating willows, wild roses, and turning over old ties, yielded *Harpalus ellipsis*, Lec., a Staphilinid, *Leptacinus* sp., a Nitidulid, *Meligethes mutatus* Harr. in numbers; *Agrilus politus* Say, also in numbers; also a *Hydnocera subfasciatus* Lec., numbers of *Aphodius vittatus* Lec., a species of *Bruchus*, probably *pauperculus* Lec., a *Tenebrionid*, *Helops difficilis* Horn, two fine specimens of Curculionids, *Nochelus æqualis* Horn, and *Lixus rubellis* Rand. *Anthonomus confusus* Dietz was also taken here.

A day at Ogden, Utah, July 24th, allowed but a single hour's collecting at the Hermitage, Ogden Canyon, six miles from the city. Here I found under stones at the water's edge *Nebria obliqua* Lec. at an altitude of over five thousand feet. Under the same conditions I took *Bembidium recticollis* Lec., *planatum* Lec. and *transversale* Dej.; *Platynus fossiger* Dej., and *P. de-*

corus Say. Under stones along the canyon stream were also found *Philonthus furvus* Nord., *basalis* Horn and *Dianus nitidulus* Lec. Two specimens of the Cerambycid, *Leptura crysocoma* Kirby were beaten from alder bushes, together with a species of *Pachybrachys*. From the same bushes were beaten *Pentaria trifasciata* Melsh. and *Anthicus stellatus* Csy.

Lagoon is a summer resort sixteen miles north of Salt Lake City. It is situated at the foot of Wasatch Mountains and three miles east of the lake. I collected there, June 25th, going west from Lagoon to the Lake. The wind was strong from the west and the temperature below sixty degrees, so catches were not very numerous. However, I found one specimen of *Calosoma tepidum* Lec. and the mutilated remains of another. Around the margins of salt ponds were found *Bembidum* in considerable numbers. I took *bifossulatum*, Lec., *insulatum*, Lec. and *approximatum* Lec. *Brachynus cordicollis* Dej. and *Chlænius pennsylvanicus* Say were found under railway ties. A species of *Cœlambus* (*lutescens* Lec.) was taken in a fresh water pond. *Aphodius vittatus* Say occurred under cow chips, together with numbers of *Metachroma californica* Cr. *Phyllotreta lewisi* Cr. were beaten from flowering plants, together with an *Oxacis bicolor* Lec. *Nemognatha bicolor* Lec. were found in thistle heads. The only two species of *Curculio* taken were *Copturus adspersus* Lec. and a single specimen of *Rhodobænus 13-punctatus* Ill.

Coming down into the Salt Lake valley from the northeast is City Creek Canyon. City Creek dashes over the rocks at the bottom of this canyon and is fed by springs and the melting snows of the higher peaks of the Wasatch range. The canyon is wooded and has a varied and abundant insect fauna, constantly changing with the elevation. I spent three or four hours in this canyon June 28th, in company with my friend, G. W. Browning, a native of Salt Lake City, an enthusiastic lepidopterist and an artist of no mean ability. This canyon is his favorite collecting ground for Lepidoptera and he is familiar with its every curve and physical feature for miles. As in Ogden Canyon, *Philonthus furvus* Nord. was the commonest Staphylinid, occurring under stones at the edge of the stream.

Phalacrus simplex Lec. was taken by beating shrubbery. The Coccinellidiæ were well represented. *Coccinella 9-notata* Hbst., *transversalis* Melsh., *sanguinea* Linn. and *Brachycantha dentipes* Fab., were common. Of the *Histers* only one species was found, *Saprinus lubricus* Lec. Of *Nitidulids*, two specimens of *Cercus pennatus* Murr. and numbers of *Meligethes mutatus* Harr. were found on thistle heads and other flowering plants.

The common *Elater*, *Dolopius lateralis* Esch., was taken, and a single specimen of a *Corymbites* very near *hieroglyphicus*. *Acmæodera variegata* Lec. was the common *Buprestid* on thistle heads and other flowers. *Ellychnia californica* Mots. and *Podobrus tomentosus* Say were taken by beating. *Collops insulatus* Lec. and *Trichochrous seriellus* Csy. were found abundantly on thistle heads. *Trichodes ornatus* Say is not uncommon, feeding on flowers. *Aphodius granarius* Linn. was fairly common, but only a single specimen of *Toxotus vestitus* Hald. was taken on flowers. Of the *Chrysomelidæ*, *Coscinoptera axillaris* Lec. *Saxinis saucia* Lec., *Lina scripta* Fab., *Disonycha collaris* Fab. and *Luperodes morrisoni* Csy. were easily taken by beating. Of *Cryptocephalus* 4-*maculota* Say, *Diachus auratus*, Fab., *Scelolyperus longulus* Lec. and *Haltica tombacina* Mann, but a single specimen of each was found. Of the *Tenebrios* a single specimen of *Coniontes robusta* Horn, was picked up high on the side of the canyon. Nearby were found *Eleodes extricata* Say, and *hispilabris* Say. Of *Anaspis rufa* Say, three specimens were taken, but only a single specimen of *Mordella scutellaris* Fab. A single specimen of *Lappus cursor* Csy. and a species of *Lappus* were also taken. *Mylacus saccatus* Lec. was rather common on flowers, while only one *Apion proclive* Lec. and a *Smicronix* sp. were found. High up on the side of the canyon and just above the city several specimens of an *Acanthoscelis* were beaten from flowers.

The popular resort for Salt Lake City people is Saltair, an immense pavilion built on piles in the lake, near its southern extremity, fourteen miles southwest of the city. Excursion trains run out almost every hour during the day with thousands of pleasure seekers, who go to dance and dip in the salt-charged waters of the lake. About a quarter of a mile east of the pa-

vilion is the power house, situated south of the track some five hundred feet. The space between the track and this power house was the scene of my collecting on the afternoons of June 26th, 27th and 29th. It is a flat saline beach with pools of salt water near the railroad embankment, with two rivulets running from a pipe line south to the pools. On the afternoon of the 26th I found *Cicindela hæmorrhagica* Lec. in large numbers along the bed and banks of the westernmost of the rivulets, and extending down to and along the edge of the pools. They were shy and active and were not easily taken on an uneven surface. The Utah forms vary in elytral markings vary slightly from the California coast specimens. None of the black variety, *pacifica*, found with the typical species in California, occur here. Just east of the rivulet I took a single specimen of *Cicindela tenuicincta* Sch. I had had since 1893 a single specimen of this species given me by E. A. Schwarz, who had taken several specimens June 15th at Garfield Beach, then the popular Salt Lake resort. Later in the afternoon I worked over to the other rivulet about three hundred feet east and was gratified to find a half dozen of *tenuicincta*. On the 27th my entire time was devoted to the east rivulet and I found this to be the almost exclusive haunt of *tenuicincta*, *hæmorrhagica* frequenting it only in scattering numbers. It was apparently the height of the season for *tenuicincta*, as two at a time, and occasionally three specimens were taken at a single cast of the net. The males were smaller and more active than the females, and were not averse to fierce encounters to secure favor in the female regard. They apparently fed on a small Dipteron which bred by the millions in the sluggish salt streams and pools. *Tenuicincta* is a strong runner and flyer, but not very shy. It is placed as a variety of the Californian *latesignata* Lec., but from its elytral markings, shape of thorax and elytra and punctuation, I am convinced that it is a separate and distinct species.

I took a single belated specimen of *Cicindela vulgaris* Say, its season having been over for several weeks. Associated with *tenuicincta* and *hæmorrhagica* I took about a dozen specimens of Casey's *echo*. They are shy, active runners and quick flyers, and will escape from the net if possible. It was evidently

late in the season for them, as my friend Browning took them as early as the latter part of April, and in numbers the middle of May. They were found on the salt flats from Saltair to within three or four miles of the city.

Under pieces of lumber and other drift-wood along the beach were found numbers of *Bembidum henshawi*, Haywd. *approximatum* Lec., and *ephippiger* Lec. A single specimen each of *Tachys corax* Lec,, *Pogonus planatus* Horn and *Amara* sp. were found. *Agabus disintegratus* Cr. had been washed ashore by the waves of the lake. A species of *Philonthus* was taken on the lake shore. Under drift on the beach and near the edge of salt pools were found *Dermestes marmoratus* Say and *talpinus* Mann. Three species of *Histers* were taken under drift: *Saprinus lubricus* Lec., *contractus* Csy. and *estriatus* Lec. A few specimens of *Aphodius inquinatus* Hbst. were picked up here and a single specimen of the Tenebrionid genus, *Blapstinus* was taken. *Tanarthus salicola* Lec. was rather common under drift.

On my return a few hours stop at Cheyenne, Wyo., permitted me to collect a short time north of the city limits, but with poor return. *Trichodes ornatus* Say was found on thistles, and *Canthon praticola* Lec. and *Aphodius coloradensis* Horn occurred under cow-chips. *Acmæops pratensis* Laich was found on sunflowers; *Bruchus pauperculus* Lec. was common on thistle flowers.

The Greenhouse Coccidae, II.

By GEORGE B. KING, Lawrence, Mass.

(Continued from Vol XII, No. 10, page 314)

DIASPINÆ.

34. **Aspidiotus spinosus** Comst. 1883.

This is found only in greenhouses in the United States. Its native home is unknown, and has only been found in greenhouses thus far.

33. **Aspidiotus lataniæ** Sign. 1869.

Syn. *A. greenii* Ckll. *A. cydoniæ* Green. Has been found on *Cycas revoluta* at Savannah, Ga. (W. M. Scott), in New York

on palms in greenhouses, and on palm (*Howea belmoreana*) at Lawrence, Kansas (S. J. Hunter); on ivy (*Hedera*) at Lawrence, Mass. (King). It is a greenhouse species in Europe (Signoret). Introduced.

34. **Aspidiotus hederæ** Vall. 1829.

Usually cited as *A. nerii*, is found on Oleander and Dracæna in the College Greenhouse in Colorado (Baker); a greenhouse pest in New Mexico (Cockerell); on lace fern, *Asparagus plumosus*, and *Hedera* in the University greenhouse at Ithaca, N. Y.; on Hedera and China tree in Ohio; on *Cycas revoluta*. *Jasminum grandiflorum* and orange in Georgia (W. M. Scott); on *Asparagus plumosus* in the University greenhouse in Illinois (W. G. Johnson); on a palm in a dwelling house at London, Ont., Canada (King); on *Oleander* at Westbrook and *Hedera hibernica* at Portland, Maine (O. O. Stover). It is a common European species and found out of doors in California and Georgia.

35. **Aspidiotus hederæ** var. **ericæ** Boisd.

Found in a greenhouse at Lawrence, Mass., on *heather* (*Erica*) King. A European species (Signoret). Introduced.

36. **Aspidiotus myrsinæ** Sign.

A species allied to *hederæ* found on *Myrsina retusa* in the hothouse of the Luxembourg, Paris (Signoret). Introduced.

37. **Aspidiotus rapax** Comst. 1881.

In Colorado on Japan quince, *Aralia* and *Ficus elastica* (Baker); on house plants in New Mexico (Cockerell); in College greenhouse at Amherst, Mass., and is found on *Camellia* in greenhouses in France. Introduced.

38. **Aspidiotus cyanophylli** Sign. 1860.

In the Harvard botanical greenhouse at Cambridge, Mass. (King); in greenhouses at Lawrence, Mass. (King); on *Ficus* species (Comstock); on *Cyanophyllum* and *Cycas* in Ceylon (E. E. Green) and in greenhouses in France (Signoret). Introduced.

39. **Aspidiotus personatus** Comst. 1882.

Has been found on plants under glass at the Kew Botanical Gardens, England.

40. **Aspidiotus aurantii** Mask. 1878.

Found on an orange in a greenhouse at San Francisco, Cal. Introduced.

41. **Aspidiotus aurantii** var. *citrinus* Coquill.

On olive in the conservatory of the U. S. department of Agr, at Washington, D. C. (Marlatt). Introduced.

42. **Aspidiotus buddeiæ** Sign.

This was found on *Buddeia salicina* in a greenhouse of the Luxembourg, Paris (Signoret).

43. **Chrysomphalus aonidum** L. Syn. *Aspidiotus ficus* Ashm.

Originally described as *Coccus aonidum*; is found at Santa Fe, New Mexico (Cockerell); at Corvallis, Oregon (A. B. Cordley); on *Phormium tenax* in Colorado (Gillette); in greenhouses in Florida; on palms at Gloversville, N. Y. (G. W. Pool); on palms, *Cycas revoluta* and ferns in Georgia (W. M. Scott); in the department greenhouses, Washington, D. C., on *Allamanda;* at Bangor, Maine (O. O. Stover). A common species in greenhouses in Mass. (King), and a frequently found species in Europe in greenhouses. Introduced.

44. **Chrysomphalus dictyospermi** Morg. 1889.

Described as an *Aspidiotus;* is found at Santa Fe, New Mexico, on *Pandanus* (Cockerell); on *Chamærops elegans* in greenhouses in Colorado (Baker); on *Areca lutescens* at Columbus, Ohio (J. S. Hine). I have received it on *Cinnamon* from a greenhouse at Ottawa, Canada, Coll. Fletcher, and from Dr. Dimmock, found on *Ficus elastica* at Enfield, Conn. It is found in Trinidad on *Areca catechu* (Hart). Introduced.

45. **Disapis cacti** var. *calyptroides* Casta.

Was first described from a greenhouse and found on Cactus in Georgia (W. M. Scott); in the college greenhouse at Amherst, Mass. on *Cactus* (D. H. Hemenway). It lives out of doors on wild *Cactacæ* at Tucson, Arizona. It is recorded from pineapple in Georgia. This seems to be an error; it must have been an *Aulacaspis* species, *bromeliæ* or *boisduvalii* [Ckll. in litt.].

46. **Aulacaspis elegans** Leon 1899.

Very destructive to *Cycas revoluta* in greenhouses at Springfield, Mass. (Dimmock), on *Cycas revoluta* in the Harvard Botanical greenhouse at Cambridge, and at Lawrence, Mass. (King). Originally described from Portici, Italy, on *Cycas revoluta*. Introduced.

47. **Aulacaspis bromeliæ** Kerner 1778.

On pineapple at San Jose, Cal., E. M. Ehrhorn, and received from O. O. Stover on *Latania borbonica* and *Livistona Chinensis* at Portland, Maine; on *Acacia*, *Olea fragans*, *Gnidia? simplex* and ivy at Plum Island and Amherst, Mass.; in the Botanical greenhouse at Cambridge, Mass. Introduced.

48. **Aulacaspis boisduvalii** Sign. 1869.

On palm in Colorado (Gillette); also on palms in greenhouse, Lawrence, Mass. (King). It is recorded as being found out of doors on apple and peach, but this seems very unlikely, as it is a tropical species. Introduced.

49. **Parlatoria proteus** var. **pergandei** Comst. 1880.

In a miscellaneous lot of scale insects sent to me by Prof. Cockerell for study, one on *Ficus* Sp., collected by P. J. Parrott, at Manhattan, Kansas, proved to be the above species. Introduced.

50. **Parlatoria proteus** var. **crotinis** Douglas 1887.

Was found on *Croton* under glass at Columbus, Ohio. Coll. Bogue (Cockerell). Introduced.

51. **Mytilaspis gloverii** Pack. 1860.

On orange and lemon in a greenhouse in New York; on orange at Marshallville, Georgia; also on *Magnolia fuscata* (W. M. Scott). A very common species on orange and lemon out of doors. Nativity uncertain, probably introduced.

52. **Mytilaspis beckii** E. Newman, 1869.

Described as *Coccus beckii* Syn. *M. citricola* Pack. Found on dwarf orange at Thomasville, Georgia; on *Citrus* sp. in a greenhouse at Manhattan, Kansas, Coll. P. J. Parrott, 1898. Very common out of doors on orange and lemon; also found in a greenhouse near Moscow, Russia, on lemon. Introduced.

53 **Pinnaspis pandani** Comst. 1881.

Found in Mass. under glass (Cockerell). Originally described under the name *Mytilaspis*. Introduced.

54. **Hemichionaspis aspidistræ** Sign. 1869.

Described as a *Chionaspis;* was found on fern in the department greenhouse of Washington, D. C. (Cooley): on fern (*Pteris serrulata*) received from Dr. Fletcher; in a greenhouse at Ottawa, Canada, 1900, also received on *Cycas* sp. from Orono, Maine, Coll. O. O. Stover, and found on fern (*Davallia moorei*) in the Harvard botanical greenhouse, Cambridge, Mass. (King). It is also a common greenhouse pest in Europe (E. E. Green) and lives out of doors on several food plants. Cited by Signoret. Introduced.

55. **Ischnaspis longirostris** Sign. 1882, *filiformis* Dougl.

On palm in department greenhouse at Washington, D. C. (Howard); on palms, *Cycas* and *Aroids* in Trinidad, and *Strychnos myristica* and other plants in the Royal Botanical Garden greenhouse, London, England. It is very common on cultivated plants in the West Indies and in Australia, on palms in greenhouses (Maskell), also found at Atlanta, Georgia, on a palm, *Kentia belmoriana* (W. M. Scott), and in a greenhouse at Boston, Mass., on *Monstera* sp. Coll. S. Henshaw. Introduced.

56. **Fiorinia fioriniæ** Targ. 1869.

This is recorded under several names, e.g., *F. camelliæ*, *Uhleria camelliæ*, *Diaspis fioriniæ*, *Fiorinia pellucida* and *Chermes arecæ*. It has been found at Washington, D. C., on *Camellia*, *Cycas reroluta* and palm *Kentia belmoriana* (Comst.); on *Camellia* at Baltimore, Maryland; on *Camellia japonica* and *Cycas revoluta* in Georgia (W. M. Scott); on *Kentia belmoriana* in conservatories at Kew, England (C. F. Morgan) and in greenhouses in France (Signoret). It is found out of doors in Europe and America.

(To be continued.)

Orneodes hexadactyla.—This species occurs also at Moscow, Idaho, where I have taken three specimens in nine years. A fourth was seen on the outside of a window, with its wings spread so as to display the peculiar structure; but when I came around to the place it had disappeared. —J. M. Aldrich.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., MAY, 1902.

The preliminary report of the Secretary of Agriculture of Pennsylvania for 1901 contains the following statement: "Division of Economic Zoology. This division is in charge of a commissioner who is known as the Economic Zoologist, whose duties are to make examination and investigations into the insect enemies of crops and report upon their ravages and give suggestions for their control or eradication." . . . . . There is also incorporated the report of the work done in the Division of Zoology for the year ending December 31, 1901, and signed by the Economic Zoologist. Seven pages of the report of the Zoologist consist of the copy of an act passed at the last session of the Legislature. This act related to the protection of trees, shrubs, nursery stock, etc., against destructive insects. There is a half page devoted to other matters, in which it is stated that the "tent caterpillar was abundant" and that the "Angumois grain moth was again troublesome in the Eastern section."

"The office work of the division has been extensive. Hundreds of letters have been received and answered." The Economic Zoologist receives a salary of $2,500 and has an assistant who receives $1,800 per annum, making in all $4,300, which does not include the expenses of the department. We leave our readers to judge whether the people of Pennsylvania receive an adequate return for the money expended. The Act of Assembly was probably not copied by the Zoologist, but if it were, that work can be done at 25 cents an hour, and it could be done in two or three hours. We consider the report from the standpoint of Economic Entomology very unsatisfactory.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

CHRYSALIS OF *Melitæa gabbi*.—On April 5, 1901, I found a chrysalis of *Melitæa gabbi* hung to a cover of a paste board box, which was lying beside the road on the top of the Casitas Pass, which is 1200 feet above sea level and is about eighteen miles from Santa Barbara, California.

The chrysalis is half an inch long and was fastened at the anal extremity and with a girdle around the middle. It was of a brownish color all over, but when I found it you could see the spots of the wings very plainly. The shape of the chrysalis is more like the chrysalis of the genus *Thecla* or *Lycæna* than like *Melitæa* and strongly resembles the chrysalis of *titus*, only the anal extremity is pointed more and the other end is rounded more, otherwise it is the same. The chrysalid hatched April 9, 1901. The spots of the wings grew much plainer as the days went by.

EGG OF *Euchlœ sara* VARIETY *reakirti*.—On April 9, 1901, at Montecito, Santa Barbara, California, I watched a *Euchlœ sara* variety *reakirti* deposit an egg. It was about ten in the morning, when I noticed this butterfly hovering round some of the common mustard; suddenly it alighted on a leaf and curving abdomen round the leaf deposited an egg on the under side near the point; then it flew off to some wild turnip to feed. The egg was shaped like a spindle and was marked with lateral lines with raised vertical edges and of a yellow-white, green color. Upon looking at it April 10th the green color was gone and it was slightly brown. On looking at it April 11th, at nine o'clock in the morning it was the same as before, but when I went to look for it at half past eleven to take it into the house I found the whole field of grain had been cut and the mustard plant, too, much to my sorrow.—GEORGE R. MINOT.

Fumigation Methods, a Practical Treatise for Farmers, Fruit Growers, Nurserymen, Gardeners, Florists, Millers, Grain Dealers, Transportation Companies, Colleges and Experiment Station Workers, etc. By Willis G. Johnson. Orange Judd Company, New York. This is a work of 313 pages, and is profusely illustrated by "half-tones" and line engraving cuts. Prof. Johnson has produced a very valuable work on an important economic subject, and treats it in a thorough manner. Hydrocyanic acid gas and carbon bisulphide are among the most valuable insecticides known, and we feel sure that persons interested in Economic Entomology will find this work invaluable, as its author is an authority on the subject.—H. S.

THE entomologists of the experiment stations of Montana, Idaho, Washington and Oregon met for conference at Moscow, Idaho, March 14, continuing in session through the following day. The principal insect pests of the section are the San Jose Scale and the Codling Moth, which were fully discussed. Many other insects were more briefly taken up. The

relation of station entomologists to the state horticultural inspection work was one of the topics considered, the unanimous opinion being that the entomologist should keep in touch with this for the sake of the assistance it would give him in arranging his experimental work, but that he should not act as an inspection or quarantine officer. The most threatening insect pests at present are the Hessian Fly, already introduced about Portland, Ore., and the Plum Curculio, which are reported on good authority as existing in the Bitter Root Valley of western Montana, on the west side of the continental divide. Plans were made for the coming season, involving among other things a fuller study of the Codling Moth at all the stations, to determine the number of broods and to test the efficacy of sprays.

It was voted to hold an annual meeting, and the name "Pacific Northwest Economic Entomologists" was adopted. The membership being necessarily small, a secretary was the only officer elected, J. M. Aldrich, of Idaho, being chosen to this position.

THE ANNUAL DINNER of the New York Entomological Society was held at the Hotel Endicott on April 1st at 7 P. M. It was a success in every way and clearly demonstrated the increased interest in entomology. The following members and guests of the Society were present:

C. F. Groth, Wm. Beutenmuller, Chas. Palm, E. L. Graef, E. P. Felt, E. B. Southwick, W. D. Kearfoot, L. T. Münch, Jr., G. Franck, F. Fillion, L. Riederer, W. T. Davis, R. L. Ditmars, F. E. Watson, E. A. Bremser, H. F. Kudlich, G. Englehardt, J. D. Sherman, Jr., C. H. Roberts, C. W. Leng, L. H. Joutel, H. G. Barber, G. Schaeffer, G. Beyer, E. G. Love, C. H. Sunderland, F. V. Green, W. G. Johnson, A. C. Weeks, R. Ottolengui, J. B. Smith, E. C. Van Dyke, W. J. Holland, Henry Skinner.

NEW LOCATION FOR MEDITERRANEAN FLOUR MOTH.—The writer is in receipt of a sample of flour badly matted and webbed together by the Mediterranean flour moth, *Ephestia kuehniella*, taken from a mill in White County, Indiana. This, so far as the writer's records and knowledge of the distribution of this pest goes, is the first appearance of this destructive insect in Indiana.—PROF. W. G. JOHNSON, New York.

"THE COW PEA" is the title of the latest publication issued by the Experiment Farm of the North Carolina State Horticultural Society at Southern Pines, N. C. This book, neatly bound and illustrated, in plain and concise manner discusses the value and uses of this important crop, the Cow Pea. Every reader can get a copy free by writing to the Superintendent of Experiment Farm, Southern Pines, N. C.

CONCERNING MOSQUITOES.—It is always interesting to the entomologist to learn what other people think of him, his methods and proceedings. It is also a matter of importance that the student of economic problems should get the experience of others, especially if based upon observation. The mosquito problem in the State of New Jersey is far from solved; but

we do still have the voluntary assistant with us. He writes under date of April 9th, 1902, as follows:—"Dear Sir :—As I red in your Experiment Station about a Man wanting ten thousand Dollars to kil those Miskatoes Now if you will take and fill a barrel half full of water in hot weather and let it stand till it stagnated and then take your glasses and look careful in the water and you will see the Logerhead those turns to Muskatoes after a few days you can see them crawling up the barrel. If that Man will stop its raining so there is no stagnated water, I think their would be No Musketoes." The advice is good, no doubt; but there is just a little difficulty in getting it carried out!—J. B. SMITH.

Sphyracephala brevicornis SAY.—In the January NEWS, in the report of the meeting on November 21st of the Entomological Section of the Academy of Natural Sciences, I noticed a reference to this species, or the "hammer-headed fly," as it is sometimes termed here, and the statement that Ithaca is a "locality with no skunk cabbage nearby." Evidently Mr. Huntingdon was misinformed in regard to this, for there is certainly an abundance of *Symplocarpus* here, even within the city limits. The "Renwick flats" are thickly covered in places with skunk cabbage, and there is also a good supply of it in places along Fall Creek. However, one often takes these peculiar little flies at some distances from the skunk cabbage tracts. This last summer scores of them were swept from bushes and herbage along Fall Creek, down near the water, at points where there was none of this plant to be seen, but there was an abundance of it to be found higher up on the banks, at the top of the gorge.—C. O. HOUGHTON.

THE SHARON SUMMER SCHOOL, conducted by the Instructing Staff of the Biological Department of the Massachusetts Institute of Technology, will have a centre for outdoor work at the Sharon Biological Observatory, Sharon, Mass. Various courses will be given including Entomology. Opens July 9th and extends over four months. Fees $30, payable in advance. For particulars, address C. E. A. Winslow, Mass. Inst. Technology at Boston.

PRIZES FOR COLLECTIONS OF BEETLES.—In pursuing its purpose to encourage the study of local natural history the Science Museum of Springfield, Mass., offers two cash prizes for the collection of beetles. These prizes are open to children who are pupils below High School grade in any Springfield school. The prizes will be one of ten dollars and one of five dollars for the two best collections.

FOURTH ANNUAL SESSION, UNIVERSITY OF MONTANA BIOLOGICAL STATION, Flathead Lake, Montana. A field and laboratory course in Entomology will be given. Instruction in collecting, preserving and labelling insects; dissection and study of typical specimens. The facilities for excursions and collecting are excellent and the country interesting and beautiful. Begins July 14th. No fees. Board $5.00 per week. For information apply to Prof. M. J. Elrod, Missoula, Montana.

Entomological Literature.

COMPILED BY J. CHESTER BRADLEY.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology, unless monographs, will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in heavy-faced type refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. The titles of all papers will be quoted in the original and not translated.

3. American Naturalist.—**4.** The Canadian Entomologist, London, Ontario, Canada.—**5.** Psyche, Cambridge, Mass.—**6.** Journal of the New York Entomological Society.—**9.** The Entomologist.—**10.** Nature, London.—**11.** The Annals and Magazine of Natural History, London.—**15.** Biologia Centrali Americana.—**19.** Horæ Societatis Entomologica Rossicæ, St. Petersburg.—**21.** The Entomologists' Record and Journal of Variation, London.—**22.** Zoologischer Anzeiger, Leipsig.—**35.** Annales Societé Entomologique de Belgique, Brussels.—**38.** Wiener Entomologische Zeitung.—**43.** La Cellule, Lierre et Louvain.—**44.** Verhandlungen der K. K. Zoologische Botanische Gesellschaft, Wien.—**45.** Deutsche Entomologische Zeitschrift, Berlin.—**55.** Le Naturaliste, Paris.—**59.** Sitzungsberichte, Gesellschaft der Naturforschenden Freunde, Berlin.—**86.** Naturwissenschaftliche Rundschau, Braunschweig.—**86a.** Annales Soc. Ent. de France, Paris.—**86b.** Bulletin Soc. Ent. de France, Paris.—**119.** Archiv für Naturgeschichte, Berlin.—**140.** Proc. Washington Academy Sciences.—**148.** Bull. New York Agric. Exper. Station, Geneva.—**157.** Ohio Naturalist.—**156.** Meddelanden af Societas Pro Fauna et Flora Fennica, Helsingfors.

THE GENERAL SUBJECT.—Bashmetlew, P.—Die Abhangigkeit des Kritischen Punkts bei Insecten von der Abkühlungs-geschwindigkeit. Insecten: Warum fliegen die Tagschmetterlinge nur am Tage und die meisten Nachtschmetterlinge nur in der Nacht? Experimentelle Entomologische Studien von physikalisch-chemischen Standpuncte aus. I. Temperatureverhältnisse bei Insekten, **86.** Braunschweig, xvii, p. 122, Mar., '02.—**Bataillon, E.** La théorie des métamorphoses de M. Ch. Pérez, **86b,** 1900, p. 58.—**Bourgeois, J.** Sur un mode particulier de progression souterraine chez quelques larves d' Insectes, **86b,** 1900, p. 261.—**Giard, A.** Cils vibratiles et prolongements ciliformes chez les Arthropodes, **86b,** 1900, p. 27. **Id.** La Métamorphose est-elle une crise de maturité génitale? **86b,** 1900, p. 54.—**Lutz, F. E.** Labels, **4,** xxxiv, p. 102.—**Peyerimhoff, P. de.** Sur l' application de la loi phylogénique de Brauer, **86b,** 1900, p. 219.—**Sharp, D.** Insecta, Zoological Record, xxxvii, 1900.—**Standfuss, M.** Zur Frage der Unterscheidung der Arten bei den Insekten. Entomologische Zeitschrift, xvi, p. 1.—**Terre, L.** Contribution à l' étude de l' histolyse du corps adi-

peux chez l' Abeille, **86b,** 1900, p. 62.—**Verhoeff.** Ueber Dermapteren Aufsatz: Versuch eines neuen, natürlicheren Systems auf vergleichend—morphologischer Grundlage und über den Mikrothorax der Insecten,* **22,** xxv, p. 181.

ECONOMIC ENTOMOLOGY.—Britton, W. E. Preliminary Experiments in Spraying to kill the San Jose Scale-insect. Connecticut Expmt. Sta. Bull., 136, Feb., '02, New Haven, Conn.—**Cordley, A. B.** Codling Moth and late spraying in Oregon. Bull. 69, Oreg. Agric. Exp. Stat.—**Felt, E. P.** Insects injurious to Elm trees. Fifth Annual Report Fisheries, Game and Forest Commission, State of New York.—**Johnson, W. G.** Fumigation methods. Orange Judd, Co., New York, 1902.—**Lowe, V. H. & Parrott, P. J.** San Jose Scale Investigations, iii, **148,** No. 202, Dec., '01.—**Noel, P.** Les Ennemis des Abeilles, **55,** Mar. 15, '02, p. 70.—**Quaintance, A. S.** Report of the State Entomologist of Maryland, 1901.—**Reuter, E.** *Physopus tenuicornis* Uzel als Erzeuger totaler Weissährigheit bei Hafer, **158,** 27, p. 115.—**Id.** *Rhizoglyphus echinopus* (Fum. et. Rob. Murray) ein neuer Schädiger des Hafers, **158,** 27, p. 121.—**Stephens, J. W. W. & Christophers, S. R.** Relation of malarial endemicity to "species" of *Anopheles*. Royal Society London, Reports to the Malarial Committee, Mar. 6, '02.

ARACHNIDA.—Banks, N. Field-notes by **Snodgrass, R. E.** Papers from the Hopkins Stanford Galapagos Expedition, 1898-9. Entomological Results (b), Arachnida,* **140,** iv, p. 49.—**Bösenberg, W.** Die Spinnen Deutschlands II, Zoologica; Original Abhandlungen aus dem Gesammtgebiete der Zoologie, Stuttgart, 1902.—**Cambridge, O. P.** Arachnida Araneidea, **15,** Vol. i, Pl. xxxix; Vol. ii, pp. 313-336, Pl. xxxi.—**Dahl, F.** Ueber abgebrochene Copulationsorgane männlicher Spinnen im Körper der Weibchen, Uebersicht der *Latrodectus* Arten,* **59,** 18, p. 36.—**Gough, L. H.** The developement of *Admetus pumilio* Koch, a contrib. to the embryol. of the Pedipalps. The Quarterly Journal of Microscopical Science, N. S, 180, p. 595, London, 1902.—**Lamy, E.** Note sur l' appareil respiratoire trachéen des Aranéides, **86b,** 1900, p. 267.—**Oudemans, A. C.** Ueber eine sonderbare Art von Ueberwinterung einer Milbe, **22,** xxv, 218, 10 Mar., '02.—**Peckham, G. W. & E. G.** Some new genera and species of Attidæ from South Africa, **5,** 9, p. 330.—**Pocock, R. I.** A Contribution to the Systematico of the Pedipalpi, **11,** 9, p. 157.—**Simon, E.** Études arachnologiques. Descr. d'espèces nouvelles de la famille des Attidæ,* **86a,** lxix, x, p. 27.—**Id.** Descriptions d'Arachnides nouveaux de la famille des Salticidæ (Attidæ), **35,** Tome 46, ii, p. 24, Feb., '02.—**Trotter, A.** Description d'une espèce nouvelle d'Eriophyes de l'Amérique du sud, **86b,** 1900, p. 224.

MYRIOPODA, Etc.—Bouvier, E. J. Observations nouvelles sur les *Peripatus*, **86b,** 1900, p. 396.—**Lucas, R.** Myropoda, **119i,** ii, p. 1029.—**Lucas, R.** Prototracheata, **119,** ii, p. 1206.—**Hansen, H. J.** On the genera and species of the Order Pauropoda,* Videnskabelige Meddelelser fra den naturhistoriske Forening, Copenhagen, 1901, p. 323.—**Verhoeff, K. W.** Beiträge

zur Kenntniss paläarktischer Myriopoden, xix, Aufsatz. Diplopoden aus Herzegowina, Ungarn und Baiern, **119,** 1, p. 221. xx, Aufsatz. Diplopoden des östlichen Mittelmeergebietes, **119,** 1, p. 241.

THYSANURA.—Folsom, J. W. Papers from the Harriman Alaska Expedition, xvii, Apterygota, **140,** iv, p. 87.—**Lécaillon, A.** Recherches sur la structure et le développement postembryonnaire de l' ovaire des Insectes, ii, *Campodea staphylinus* Westw., **86b,** 1900, p. 152; iii, *Machilis maritima* Latr., **86b,** 1900, p. 205.—**Lucas, R.** Apterygogenea, **119,** ii, p. 1016.—**Skorikow, A. S.** Einige Beobachtungen über die Häutung der Collembola, **19,** T. xxxv, No. 2, p. 156, St. Petersburg.—**Willem, V.** La position des Anurophoriens dans la classification des Collemboles, **35,** Tome 46, ii, p. 21, Feb., '02.

ODONATA.—Calvert, P. P. Neuroptera (Odonata)*, **15,** pp. 73–96.—**Lucas, R.** Odonata, **119,** ii, p. 1000.

CORRODENTIA.—Lucas, R. Corrodentia, **119,** ii, p. 901.

MALLOPHAGA.—Kellogg, V. L. Mallophaga from Birds of the Pacific Coast of N. America,* **6,** x, p. 20.—**Lucas, R.** Parasitica (Mallophaga), **119,** ii, p. 900.

ORTHOPTERA.—Bordas, L. See Hymenoptera.—**Bruner, L.** Orthoptera, **15,** ii, pp. 25–32.—**Caudell, A. N.** The Dectinean genus Eremopodes,* **4,** xxxiv, p. 98.—**Kuhlgatz, Th.** Orthoptera, **119,** ii, p. 917.—**Sinéty, R. de.** Les tubes de Malpighi chez les Phasmes, **86b,** 1900, p. 333.—**Id.** Homologation du testicule chez les Phasmes, **86b,** 1900, p. 350.—**Id.** Recherches sur la Biologie et l'Anatomie des Phasmes, **43,** xix, p. 119.

THYSANOPTERA.—Lucas, R. Thysanoptera, **119,** ii, p. 900.—**Reuter, O. M.** Thysanoptera tria mediterranea* Ofversigt af Finska Vetenskaps-societetens Förhandlingar Helsingfors, xliii, p. 214.

HEMIPTERA.—Breddin, G. Neue neotropische Wanzen und Zirpen,* Societas Entomologica, xvii, p. 1.—**Cockerell, T. D. A.** The Coccid genus *Aulacaspis*, **9,** Mar., '02, xxxv, p. 58.—**Id.** New Coccidæ from the Argentine Republic and Paraguay, **4,** xxxiv, p. 88.—**Kuwana, S. T.** Coccidæ (Scale Insects) of Japan. Proc. Calif. Acad. of Sciences, vol. iii, No. 2, p. 1, San Francisco.—**Id.** Coccidæ from the Galapagos Islands,* **6,** x, p. 28.—**Lucas, R.** Rhynchota, **119,** ii, p. 822.—**Osborn, H.** Remarks on the study of leaf hoppers, **157,** ii, p. 224.—**Reuter, O. M.** Monog. generis *Tarisa* Am. et Serv.* Ofversigt af Finska Vetenskaps, Societ. Förhandlingar, xliii, p. 25.

NEUROPTERA.—Lucas, R. Neuroptera (Planipennia), **119,** ii, p. 820.

MECOPTERA.—Lucas, R. Panorpatæ, **119,** ii, p. 819.

ISOPTERA.—Gounelle, E. See Hymenoptera.

PLECOPTERA.—Lucas, R. Plecoptera, **119,** ii, p. 999.

EPHEMERIDA.—Lucas, R. Agnatha, **119,** ii, p. 1013.

TRICHOPTERA.—Lucas, R. Trichoptera, **119,** ii, p. 815.

LEPIDOPTERA.—Aro, J. E. Ueber *Hadena maillardi* var. *Kunsamoensis* Staud., **158,** 27, p. 46, 1901.—**Bordage, E.** Sur les différentes colorations

des chrysalides de *Papilio demoleus* et de *Danais chrysippus*, **86b**, 1900, p. 234.—**Chapman, T. A.** Classification of *Gracilaria* and allied genera, **9**, xxxv, p. 81.—**Dodd, F. P.** Scent Organs of Hepialidæ, **9**, Mar., '02, p. 73.—**Dyar, H. G.** Descr. of a new Noctuid,* **4**, xxxiv, p. 105.—**Id.** Life Histories of North Amer. Geometridæ, xxxi, **5**, vol. 9, p. 336.—**Id.** The larva of *Carama cretata*, **6**, x, p. 54.—**Finn, F.** Birds attacking Butterflies and Moths, **10**, lxv, p. 415.—**French, G. H.** The yellow-winged Catocalæ, **4**, xxxiv, p. 95.—**Fruhstorfer, H.** Eine neue Lokalform der seltenen *Ag. amydonius* Stdgr., **45**, xiv, p. 327, March, 1902.—**Id.** Eine neue Agrias,* **45**, xiv, p. 351, Mar., '02 —**Grote, A. R.** Changes in the color of butterflies, **4**, xxxiv, p. 94 —**Id.** Note on *Clenucha Cressonana*, **4**, xxxiv, p. 104.—**Id.** On the use of *Eupethecia*, **4**, xxxiv, p. 104.—**Joannis, J. de.** Description de trois Lépidoptères de Cav-Bang (Tonkin), **86b**, 1900, p. 280.—**Linden, M. Von.** Le dessin des ailes des Lépidoptères, Annales des Sci. Natur. Zoolog. and Paleont., Paris, p. 1, 1902.—**Lucas, R.** Lepidoptera, **119**, ii, p. 451.— **Mabille, R.** Descr. d' une Hespéride nouvelle (Costa Rica),* **86b**, 1900, p. 230 —**Quail, A.** Formation of pattern on eggshell of a species of Lepidoptera, **9**, Mar., '02, xxxv, p. 57.—**Poulton, E. B.** Birds attacking butterflies and moths, **10**, 65, p. 465, Mar. 20, '02.—**Sahlberg, J.** Trädgärdsnunnen (*Ocneria dispar* F.) funnen i Finland, **158**, 27, p. 94.—**Schaus, W.** A new species of *Dirphia*, **6**, x, p. 54.—**Seifert, O.** Contributions to the knowledge of N. American Arctiidæ 1, ii, **6**, x, p. 1.—**Smith, G.** Variation in the genus *Erebia*, **9**, Mar., '02, xxxv, pp. 69, 89.—**Smith, J. B.** New species Noctuidæ for 1901,* **6**, x, p. 33.—**South, R.** Gynandrous examples of *Amphidasys betularia*, **9**, Mar., '02, xxxv, p. 72.—**Standfuss, M.** Études zoologiques expérimentales sur les Lépidoptères, résultats principaux obtenus jusqu' à la fin de 1898 (pl. 1 – 3), **86a**, 1900, p. 82.—**Thomann, H.** Schmetterlinge und Ameisen. Beobachtungen einer Symbiose zwischen *Lycæna argus* L., und *Formica cinerea* Mayr., Jahresbericht der Naturforschenden Gesellschaft Graubündens, xliv, ii, p. 1.—**Woodworth, C. W.** Butterflies. Nature Study Bulletins, University of California.

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Doings of Societies.

A regular meeting of the Chicago Entomological Society was held in the John Crerar Library Thursday evening, March 20, 1902, at 8 o'clock. Seven members present, with President Longley in the Chair. Visitor, Mrs. Westcott.

The subject chosen for discussion at next meeting was "Edible insects and products of insects useful to man." Talk to be led by Mr. John Healy. Mr. A. Kwiat read an interesting paper on the small Catocalæ, in which he attempted to straighten out their classification. President Longley also showed some Catocalæ, and Prof. Westcott exhibited *Catocala messalina*.

JOHN ADAMS COMSTOCK, *Secretary*.

At the March meeting of the Feldman Collecting Social held at the residence of Dr. Henry Skinner, 716 North 20th Street, eleven persons were present.

Prof. Smith reported some investigations on a scale insect infesting rose, blackberry and raspberry bushes, known as *Diaspis rosæ*. This insect winters in all stages of growth, an unusual condition in the insecta. In January were found stages from half grown to fully developed males and females, the latter with embryos. The anatomy of the piercing mouth parts, consisting of three lancets, was described.

Mr. H. Wenzel exhibited fifteen specimens of Cychrus, including *stenostomus*, *canadensis*, *LeContei* and *bicarinatus*, in order to illustrate the intergradation of these forms, which showed to his satisfaction that the whole series represented but one species. He also referred to specimens of *Cicindela* collected at Vowells Mills, Louisiana, all of which are immaculate forms of several known species.

Variation and geographical forms were discussed by Messrs. Wenzel, Smith and Skinner. Dr. Skinner referred to the difficulty of studying Argynnis from our present knowledge and spoke of the necessity of biological data in this connection. Mr. Laurent stated that the true *Cicindela longilabris* and the variety *laurenti* do not seem to commingle, the variety keeping to the woods, whereas the typical form occurs along roadways.

Mr. Daecke exhibited a specimen of *Dichelia sulfureus* which he had found on *Lemonium Carolinianum*. Also a specimen of *Crabro trifasciatus*, which had tunneled into a sumach stem. In the same tunnel he had found a dipterous pupa.

Dr. Skinner exhibited a drawer of Pamphila containing five or six named species which he believed to be only varieties of one form, belonging to the *comma*-group.

WILLIAM J. FOX, Secretary.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held March 27th. Mr. Laurent, Director, presiding. Eleven persons were present. Dr. Skinner exhibited a mass of small shells held together by the cocoon of a lepidopterous larva. Mr. Green exhibited specimens of *Physonsta unipunctata* with their larvæ, from Boonton, N. J. The species is new to New Jersey. Mr. Johnson spoke of an interesting Dipterous insect (*Tachytrechus binotatus*), in which the long slender arista bears a middle and terminal disc-like node; in this respect it resembles the European genus *Sybistroma*. It was captured by Mr. George M. Greene at Durham Pond, Morris County, N. J., and has not hitherto been recorded from the State. Mr. J. C, Bradley exhibited some interesting insects from Haiti. Mr. Laurent showed an aberration of *Colias philodice* ♂ with the neuration jet black. It was taken by James Gillen, at Ambler, Montgomery County, Pa., during the fall of last year. Mr. Laurent also exhibited the Coleoptera he took in Florida last winter and spring; 418 species were found, most of them being taken at Miami, Dade County. *Chlænius floridanus* Horn, taken at Enterprise, was specially mentioned. *Cicindela tortuosa* was seen in large numbers and fairly swarmed. The plant from which he had bred *Lagochirus araneiformis* was also shown. Some of the smaller species had been mounted by Mr. Charles Boerner. Mr. J. C. Bradley was elected a member of the Section.

HENRY SKINNER, *Recorder*.

EXCHANGES.

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☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, the sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly; 4th, All insects must be mounted. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2-cent stamp with all insects for return of names. **Please put date of capture and exact locality on each specimen.** Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Wanted.—Microlepidoptera, especially Tineina of the United States. Will either buy or give exchanges. Desire to open correspondence with collectors of these groups and will determine material.—W. G. Dietz, 21 N. Vine Street, Hazelton, Pa.

Exchange.—200 Chrysalids; *Papilio Ajax;* 80 Chrysalids; *Papilo turnus.* Live Pupas of *Myrones* and Cocoons of *Promethus.* Will take Exotic flies, Western bird skins and humming birds' nests.—W. H Valway, 2671 Broadway, Cleveland, Ohio.

Wanted live Pupæ, also Lepidoptera, Coleoptera. Will give European and Exotic species in exchange.—Arnold Voelschow, Schwerin Meckl., Germany.

Lepidoptera for exchange from United States, Europe, South America and East India for specimens new to my collection.—A. Troschel, 446 Larchmont Ave., Chicago.

Lepidoptera.—Exchange desired with collectors in any State. Please send lists.—John & Hurd Comstock, 1572 Ridge Ave., Evanston, Ill.

Wanted.—Hymenoptera, especially ants and wasps from the Southern and Western States and American Termites, and any entomological publications.—Canisius College Museum (H. Wolff, S. J.), Buffalo, N. Y.

Exchange.—*Cicindela puritana* for any Cicindelidæ new to my collection. Will exchange also N. American or European Coleoptera. Send for lists. Correspondence in English and French.—C. Crozet, New Park Ave., Hartford, Conn.

Diptera.—Wanted, as many Asilina as possible from all parts of North America.—Write for particulars to Prof. C. H. Fernald, Amherst, Mass.

Lepidoptera —*Argynnis nitocris* var. *nigrocærulea* Ckll., for exchange. Also many other rare butterflies.—Henry Skinner, Acad. Nat. Sciences, 1900 Race Street, Philadelphia.

Exchange.—British Columbia Lepidoptera. Only North American species wanted. Send lists.—Ernest M. Anderson, 64 Superior Street, Victoria, B. C.

Lepidoptera —I wish to purchase Lepidoptera of North America, especially *Noctuidæ.*—Edouard Brabant, Morenchies Par. Cambria (Nord), France.

Exchange.—Will collect Scydmænidæ and Pselaphidæ in exchange for papers on the families of Scydmænidæ, Pselaphidæ and Staphylinidæ.—August Schmidt, 1836 E. Atlantic St., Philadelphia.

Lepidoptera.—I would like to correspond and exchange with some new beginners.—Charles L. Heink, 4320 North Eleventh St., St. Louis, Mo.

Wanted.—Living larvæ. pupæ, fertile females or eggs of any of the North American *Callimorphæ* (genus *Haploa* Hüb.). Will exchange New Hampshire Lepidoptera.—F. H. Foster, Claremont, N. H.

Dytiscidæ from Florida and other Southern States, from Illinois and Ohio, and from the Northwest, Alaska, British Columbia and Hudson Bay wanted in exchange for cash.—Address John D. Sherman, Jr., 148 East Eighteenth Street, New York City.

Wanted at once.—For cash. One hundred cocoons: *cecropia, polyphemus* or *promethea*. L. O. Howard, Division of Entomology, U. S. Dept. of Agriculture. Write before sending.

In Exchange for specimens of equal value, especially *Catocalas*. I offer *C. Blandula, Micronympha, Alabamæ, Olivia*, etc.—Joseph Mattes, 138 East 48 Street, New York City.

Chrysomelidæ Wanted.—Especially *Cryptocephalini*. Undetermined material accepted. Will give good exchange. Frederick Knab, 8 Springfield Street, Chicopee, Mass.

Lepidoptera.—Wanted by purchase or exchange.—B. A. Overbeck, 30 Hill St., Allegheny, Penna.

Wanted.—Cocoons of Cynthia and Luna moths in exchange for cocoons of Promethus and Cecropia.—Harry Russell, 905 Clinton Ave., Bridgeport, Conn.

Arctians.—Living eggs or larvæ of any North American moths of the genus *Arctia* wanted for the purposes of studying preparatory stages. Will be glad to render help, if possible, as to wants of anyone assisting.—Arthur Gibson, Cent. Exp. Farm, Ottawa, Can.

Basswood Insects.—The writer is making a special study of insects injurious to Basswood (*Tilia*). Notes on insects found feeding on this tree will be acceptable.—Arthur Gibson, Cent. Exp. Farm, Ottawa, Can.

Lepidoptera.—Wanted for cash: cocoons of *A. pernyi* and eggs of *A. yama-mai* and *A. pernyi*.—R. Ludwig, 513 Empire Bldg., Atlanta, Ga.

Will collect any order in Pennsylvania and New Jersey this season in exchange for Hymenoptera.—J. Chester Bradley, 2221 Spring Garden St., Philadelphia.

Wanted.—Specimens of the genus Homoptera (except *edusa* and *lunata*), from all parts of the United States and Canada, for comparison. Will give other North American Lepidoptera in exchange.—W. E. Longley, 115 South 64th Ave,, Oak Park, Ill.

Lepidoptera.—I would like to correspond and exchange with some new beginners.—Phineas Whiting, 106 Fairmount Street, Lowell, Mass.

Will exchange for Holland's Butterfly book, other literature treating of Lepidoptera, or for desirable specimens of that order, an absolutely new copy of "Howards Insects." See adv. for list of Utah material which I have for exchange.—L. I. Holdredge, Hudson High School, Hudson, N. Y.

Will collect in any order in exchange for Coleoptera, Hermiptera and Lepidoptera.—Charles Stevenson, 906 St. Urbain Street, Montreal, Quebec, Canada.

Exchange Wanted.—Particularly *Cotocalas*. Send list to Jos. H. Reading, 775 North Rockwell Street, Chicago.

Auszug aus Lepidopteren-Liste No. 45.

Gegründet 1858 — **Dr. O. Staudinger & A. Bang-Haas** — Gegründet 1858

Inhaber: **Andreas Bang-Haas.**

Blasewitz bei Dresden — **December 1901—December 1902.**

☛ Jährlich, Anfang December, erscheint eine neue Liste. **Liste 45** ist in handlichem Octavformat gedruckt, **92 Seiten** stark, mit vollständigem **Gattungs-Register,** sowohl für **Europäer,** als für **Exoten.** Es werden darin angeboten: ca. **16000** paläarktische und exotische **Lepidopteren,** ca. **1400** präparirte **Raupen,** lebende **Puppen, Bücher, Geräthschaften** etc., **156** verschd. **Serien, Centurien, Localitäts-Loose** u. **Schulsammlungen** von gespannten und Düten-Schmetterlingen aus allen Weltgegenden zu **äusserst billigen Preisen.** Da fast alle im **Handel** befindlichen Arten in dieser Liste angeboten sind, so eignet sich diese auch sehr gut als **Sammlungs-Catalog.**

Diese Liste enthält folgende Abtheilungen [Index]:

I. aus dem **europäisch.** Faunengebiete. [**Europe** et des pays limitrophes].
II. Liste **präpar. Raupen. Chenilles** prépar.
III. Liste lebender **Puppen** [und **Eier.**] — **Chrysalides** vivantes etc.
IV. aus dem **nord-amerikanischen** Faunengebiete. [**Amerique** septentrionale.]
V. aus dem **süd-amerikanischen** Faunengebiete. [**Amerique** meridionale.]
VI. aus dem **indo-australischen** Faunengebiete. [Faune **Indo-Australienne.**]
VII. aus dem **afrikanischen** Faunengebiete. [Faune **Africaine.**]
VIII. **Centurien-Preise für Lepidopteren.** Entomol. **Bücher, Sammel-Requisiten, Notizen. Lépidoptères en Centuries,** Livres d'Entomologie.
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Preise in Zehntel Mark, 10 = 1 Mark. **Prix** en unités (ou en 1/10 Marks) 8 = 1 Franc. **Prices** in unities (or 1/10 Mark) 10 = 1 Shilling. ☛ **Beispiele der Preise:** Papilio Podalirius 2 = 20 Pf. Thais Medesicaste 6.10 = Männchen (♂) 60 Pf., Weibchen (♀) 100 Pf.
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☛ **Gegen Baar wird** [je nach den Arten, Grösse der Bestellung, Qualität etc.] **höchstmöglichster Rabatt gegeben.**

Von den in **Liste 45** angebotenen ca. **7500 paläarktischen Lepidopteren** führen wir nachstehend **einige** wenige Gattungen mit den bekanntesten europäischen Arten an:

I. Aus dem europäischen Faunengebiete.

Rhopalocera.
ca. 1400 Arten.

1. Papilionidae.

Papilio	♂	♀
Podalirius	2	
Hospiton	60	
Machaon	2	
Thais		
Cerisyi	15.25	
v. Deyrollei	10.15	
Polyxena	2	
Rumina	12	
v. Medesicaste	6.10	
Doritis		
Apollinus	25.35	
Parnassius		
(53 Arten)		
Apollo	3.4	
Delius	6.12	
Mnemosyne	3	

2. Pieridae.

Aporia		
Crataegi	2	
Pieris	♂	♀
Brassicae	1	
Krueperi	40.—	
Rapae	1	
Ergane	15.20	
Napi	2	
Callidice	6.12	
Euchloë		
(Anthocharis)		
Belemia	15.—	
Belia	6.10	
g. a. Ausonia	6.12	
Tagis	25.—	
Pyrothoë	20.60	
Cardamines	2	
Gruneri	15.—	
Damone	15.45	
Euphenoides	6.10	
Zegris		
Eupheme	30	
Colias		
(60 Arten)		
Phicomone	4	
Hyale	2	
Erate	15.—	
	♂	♀
Romanovi	40.150	
Chrysotheme	6.8	
Edusa	2.4	
Myrmidone	4	
Aurora	75.250	
Gonepteryx		
(Rhodocera)		
Rhamni	1	
Cleopatra	6	

3. Nymphalidae.

Charaxes		
Jasius	30	
Apatura		
Iris	8.12	
Ilia	10.20	
v. Clytie	6.8	
v. Bunea	50.—	
v. Metis	20.60	
Limenitis		
Camilla	10	
Populi	8.12	
ab. Tremulae	8.—	
Sibilla	3	
Neptis	♂	♀
Lucilla	8	
Aceris	10.15	
Pyrameis		
Atalanta	2	
Cardui	1	
Vanessa		
Jo	1	
Urticae	1	
v. Turcica	8	
L-album	20	
Xanthomelas	6	
Polychloros	1	
Antiopa	2	
Polygonia		
C-album	4	
Egea	10	
Araschnia		
Levana	2	
g. a. Prorsa	2	
Melitaea		
(84 Arten)		
Iduna	15.25	
Maturna	6	
	♂	♀
Cynthia	6.8	
Aurinia	2	
Argynnis		
(89 Arten)		
Aphirape	10	
Selene	1.2	
Euphrosyne	2.4	
v. Fingal	6.10	
Pales	3.4	
Freija	12.—	
Danais		
Chrysippus	15	
Melanargia		
(30 Arten)		
Lachesis	5.7	
ab. Cataleuca	—.60	
Galathea	1.2	
Erebia		
(107 Arten)		
Epiphron	8.—	
v. Cassiope	3.6	
Melampus	3.—	
Mnestra	6.—	

Anfragen im Interesse der Fragesteller bitten wir das **Rückporto** beizulegen.
Bei Bestellungen unter 20 Mk. wird **Emballage** berechnet (50 Pfg. und mehr). **Porto** stets extra.

Die **systematische Reihenfolge** der Liste 45 ist die der neuen Auflage (1901) des **Cataloges der Lepidopteren** des paläarkt. Faunengebietes von **Dr. Staudinger und Dr. Rebel,** 810 pag., gross Octav, Preis Mark 15.— (und Porto).

Oeneis ♂ ♀
Aello 8.15
Jutta 20
Tarpeia 40.60
Satyrus
(89 Arten)
Circe 4.8
Hermione 3.5
Alcyone 3.5
Briseis 3
Anthe 25
Pararge
Aegeria 4.8
Climene 20.40
Roxelana 20.30
Megera 1
Aphanthopus
Hyperantus 2.4
Epinephele
(39 Arten)
Jurtina Janira 1
v. Telmessia 8.12
Lycaon 2.3
Tithonus 2.3
Ida 4.8
Pasiphaë 3.8

Libythea
Celtis 6
Nemeobius
Lucina 2.3

6. Lycaenidae.

Laeosopis
Roboris 30
Thecla
Spini 4
Ilicis 4
Acaciae 6
Pruni 6
Callophrys
Rubi 2
Zephyrus
Quercus 3
Betulae 2
Thestor
Ballus 10.15
Callimachus 40.60
Nogelii 15.—
Chrysophanus
(Polyommatus)
Virgaureae 1.2
v. Miegii 15
(42 Arten)
Lampides
Boeticus 12
Telicanus 20
Lycaena
(188 Arten)
Argiades 5
Fischeri 30.—
Argus 1.2
Optilete 6.8
Baton 3.6
Orion 3.4

7. Hesperiidae.

Heteropterus ♂ ♀
Morpheus 3.6
Pamphila
Palaemon 3.6
Silvius 8.12
Adopaea
Lineola 3.4
Thaumas 2.3
Actaeon 4.—
Carcharodus
Alceae 4
Altheae 8.—
Hesperia
Proto 10.15
Sidae 25.—
Carthami 3.4
Alveus 3.—
Thanaos
Tages 2

Heterocera.
(3400 Arten)

8. Sphingidae.

Acherontia
Atropos 15
Smerinthus
Populi 2
Ocellata 2
Dilina
Tiliae 3
Daphnis
Nerii 25
Sphinx
Ligustri 2
Protoparce
Convolvuli 8
Hyloicus
Pinastri 3
Deilephila
Vespertilio 12
Hippophaës 20
Gallii 6
Dahlii 25
Euphorbiae 2
Nicaea 200
Livornica 15
Chaerocampa
Celerio 40
Alecto 50
Elpenor 2
Metopsilus
Porcellus 5
Pterogon
Proserpina 8
Gorgoniades 100
Macroglossa
Stellatarum 2
Croatica 25
Hemaris
Fuciformis 5
Scabiosae 6

9. Notodontidae.

Cerura ♂ ♀
(Harpyia)
Bicuspis 40
Furcula 10
Bifida 4
Dicranura
Erminea 10
Vinula 2

II. Lymantriidae.

Orgyia
Gonostigma 3
Antiqua 2
Ericae 10.—
Dubia 15.10
Dasychira
Selenitica 6
Fascelina 4
Abietis 30
Pudibunda 2
Lymantria
Dispar 2
Oeneria
Terebynthi 10.—

12. Lasiocampid.

Malacosoma
Neustria 2
Castrensis 3
Franconica 12
Alpicola 15
Trichiura
Crataegi 8.10
Poecilocampa
Populi 8
Eriogaster
Rimicola 8
Catax 6
Lanestris 3
Lasiocampa
(Bombyx)
Quercus 3
Trifolii 5
Macrothylacia
Rubi 3
Cosmotriche
Potatoria 3
Epienaptera
Ilicifolia 20
Tremulifolia 7
Gastropacha
Quercifolia 5
Populifolia 25
Odonestis
Pruni 12
Dendrolimus
Pini 4
Pachypasa
Otus 25
Taragama
(Megasoma)
Repanda 50

Endromis ♂ ♀
Versicolora 6.8

15. Saturniidae.

Graëllsia
Isabellae —.150
Perisomena
Caecigena 40.60
Saturnia
Pyri 10
Spini 10
Pavonia 3
Aglia
Tau 5

21. Noctuidae.

ca. 1500 Arten
darunter
Agrotis
mit 274 Arten
Cucullia
mit 39 Arten
Plusia
mit 49 Arten
Catocala
(46 Arten)
Fraxini 8
Elocata 4
Puerpera 12
Nupta 3
Dilecta 25
Sponsa 6

25. Geometridae.

ca. 1000 Arten

Syntomis
Phegea 2
Caspia 10

31. Arctiidae.

Spilosoma
Mendica 3
Lubricipeda 2
Phragmatobia
Fuliginosa 2
Luctuosa 16
Parasemia
(Nemeophila)
Plantaginis 2
Rhyparia
Purpurata 4
Diacrisia
Sanio Russula 2.4
Oenogyna
Corsicum 10
Arctia
(34 Arten)
Caja 2
Flavia 40
Villica 3
Aulica 3
Dejeanii 350.300
Hebe 5
Pericallia
(Pleretes)
Matronula 90

Callimorpha ♂ ♀
Dominula 2
v. Persona 50
Quadrip. Hera 5
Coscinia
(Emydia)
Striata 3.6
Cribrum 8.12
Hipocrita
(Euchelia)
Jacobaeae 2
Deiopeia
Pulchella 4

33. Zygaenidae.

Zygaena
(137 Arten)
Purpuralis 1
Scabiosae 4
Sarpedon 6.9
Contaminei 40.50
Punctum 5
Achilleae 2.3
Aglaope
Infausta 4
Ino
Ampelophaga 10.—
Pruni 2
Chloros 5.7

36. Psychidae.

Acanthopsyche
Opacella 10.5
Pachytelia
Unicolor 3.—
Amicta
Ecksteini 15.—
Oreopsyche
Muscella 5.—
Atra 4.—
Psyche
Viciella 15.—

37. Sesiidae.

Trochilium
Apiformis 5
Melanocephala 40
Sciapteron
Tabaniformis 6
Sesia
(46 Arten)
Scoliaeformis 25
Spheciformis 10
Tipuliformis 4
Bembecia
Hylaciformis 6
Paranthrene
Tineiformis 20
Myrmosaefrm 10.20
Phragmataecia
Castaneae 20
Zeuzera
Pyrina 8
Hepialus
Humuli 4

Microlepidoptera ca. 2800 Arten. | **II. Präparirte Raupen** ca. 1400 Arten.

III. Lebende Puppen, 127 überwinternde Arten. Sommerpuppen u. leb. Raupen führen wir nicht.

Von **Exoten** bieten wir in Abth. IV—VII über **8000 Arten** an und führen wir nachstehend **einige wenige farben- u. formenprächtige u. Riesen-**Arten auf. Betreffs der Preise wolle man unsere neueste Liste vergleichen und bemerken wir zugleich, dass wir bei **Exoten ausserordentlich hohen Rabatt** gewähren.

IV. Aus dem nordamerikanischen Faunengebiete (ca. 500 Arten).

Papilio
Troilus
Parnassius
Smintheus

Argynnis
Diana
Zerene
Erinna

Limenitis
Lorquini
Actias
Luna

Telea
Polyphemus
Philosamia
Cynthia

Callosamia
Promethea
Platysamia
Cecropia

Hyperchiria
Jo
Erebus
Odora

V. Aus dem südamerikanischen Faunengebiete (ca. 3600 Arten).

Papilio 156 Art.
Crassus
Polydamas
Pausanias
Harmodius
Asius
Childrenae
Sesostris
Eurybates
Anchisiades
Zagraeus
Thoas
Cinyras
Polycaon
Dolicaon
Philolaus
Pereute
Leucodrosime
Dismorphia
Nemesis
Perrhybris
Pyrrha
Lycorea
Atergatis

Tithorea
Bonplandii
Cuparina
Heliconius
Eucrate (84 Art.)
Rhea
Phyllis
Amaryllis
Favorinus
Aglaope
Doris-caerulea
Victorina
Steneles
Batesia
Hypoxantha
Panacea
Prola
Peridromia
Amphinome
Velutina
Catonephele
Acontius
Numilia
Obrinus

Eunica
Orphise
Pomona
Augusta
Temenis
Pulchra
Laothoë
Perisama
Vaninka
Saussurei
Callicore
Peruviana
Neglecta
Catagramma
Aegina
Mionina
Cynosura
Cyllene
Titania
Zelphanta
Callithea
Sapphira
Hewitsoni

Dynamine
Gisella
Chlorippe
Seraphina
Cherubina
Cyane
Protogonius
Tithoreides
Siderone
Ide
Prepona
Demophon
Laertes
Agrias (8 Art.)
Sardanapalus
Morpho
Aega (41 Arten)
Sulkowskyi
Cypris
Amathonte
Achilles
Hydorina
Caligo (16 Art.)
Eurylochus

Atreus
Callitaera
Menander
Lyropteryx
Apollonia
Aeneyluris
Eryxo
Diorhina
Periander
Zeonia
Terpsichore
Symmachia
Amazonica
Trochilus

Castnia
Cacica (25 Art.)
Licus

Calliomma
Licastus
Philampelus
Labruscae
Linnei

Protoparce
Rustica
Pseudosphinx
Tetrio

Rheseyntis
Erythrina
Attacus
Aurota
Arethusa
Hesperus
Polythysana
Andromeda
Hyperchiria
Illustris
Viridescens

Ophideres
Procus
Thysania
Agrippina

Urania
Leilus (13 Art.)
Fulgens

VI. Aus dem indo-australischen Faunengebiete (ca. 3100 Arten).

Teinopalpus
Imperialis
Ornithoptera
43 Arten
Priamus
Pegasus
Richmondia
Croesus
Hippolytus
Cuneifera
Ruficollis
Brookeana
Papilio
260 Arten
Laodocus
Erithonius
Demolion
Euchenor
Ulysses

Peranthus
Blumei
Buddha
Paris
Arjuna
Karna
Deiphontes
Memnon
Rhetenor
Philoxenus
Sarpedon
Gyas
Evan
Leptocircus
Curius
Pieris
Teutonia
Java
Emma

Tachyris
Nero
Celestina
Delias
Pandemia
Aruna
Eumolpe
Timorensis
Nigrina
Hebomoia
Palawana
Hestia
Lynceus
Ptychandra
Plateni
Zeuxidia
Amethystinus
Horsfieldii

Tenaris
Diana
Macrops
Staudingeri
Thaumanthis
Odana
Cethosia
Hypsina
Damasippe
Kallima
Paralekta
Inachis
Amnosia
Decora
Cyrestis
Nivalis
Acilia
Limenitis
Procris

Symphaedra
Dirtaea
Apaturina
Erminea
Charaxes
Athamas
Baya
Hindia
Prothoë
Mulderi
Frankii
Amblypodia
Herculina

Cocytia
Durvillei

Attacus
Atlas
Atlantis

Antheraea
Frithi
Pernyi

Ophidere
Fullonica
Salaminia
Phyllodes
Consobrina
Patula
Macrops

Nyctalemon
Patroclus
Liris

Euschema
Militaris
Milionea
Flammula

VII. Aus dem afrikanischen Faunengebiete (ca. 850 Arten).

Ornithoptera
Zalmoxis
Papilio
43 Arten
Ucalegon
Corinneus
Phorcas
Hesperus
Demoleus

Policenes
Menestheus
Merope
Zenobia
Callosune
Jone
Omphale
Junonia
Clelia

Salamis
Anacardii
Nebulosa
Hamanumidia
Daedalus
Cynandra
Afer
Euphaedra
Francina

Neophron
Cymothoë
Theodota
Fumana
Theobene
Euxanthe
Wakefieldi
Charaxes
Pollux

Brutus
Lucretius
Eupale
Violetta
Tiridates
Numenes
Zingha
Palla
Varanes

Jana
Preciosa
Antheraea
Anthina
Paphia
Eudaemonia
Brachyura
Urania
Ripheus

In unserer letzten **Coleopteren-Liste XX** (116 Seiten gross Octav) bieten wir ca. **21000** Arten aus allen Welttheilen an, davon **11500** aus dem paläarktischen Faunengebiete; **73 Centurien und Loose** zu **äusserst billigen Preisen.** Die Liste ist mit **vollständigem alphabetischen Gattungsregister (4000 Genera)** versehen und eignet sich sehr gut **als Sammlungscatalog.** Wir bieten nicht nur die **hervorragendsten Seltenheiten** in der Liste an, sondern auch die bekanntesten deutschen Arten, wie:

Procrustes Coriaceus	Lucanus Cervus	Cerambyx Cerdo
Carabus Auronitens	Oryctes Nasicornis	Purpuricenus Koehleri
Auratus	Osmoderma Eremita	Morimus Funereus
Nitens	Chalcophora Mariana	Lamia Textor
Ullrichi	Ergates Faber	etc. etc.

und sind diese vorstehenden Arten auch in der Centurie deutscher Coleopteren zum Preise von Mark 5.— enthalten. (Emballage ca. 75 Pfg. und Porto extra.)

Von **exotischen Coleopteren,** von denen wir fast **10000 Arten** anbieten, sind die **hervorragenden Schaustücke** fast stets in Anzahl vorhanden. Wir erwähnen nur:

Ceroglossus 25 Formen	Macrodontia Cervicornis	Pseudochalcothea 4 Arten
Chiasognathus Granti	Cheloderus Childreni	und viele Cetoniden.
Phanaeus viele Arten	Macropus Longimanus	Hervorragende Buprestiden
Plusiotis Resplendens etc.		und Cerambyciden.
Enema Infundibulum, Pan	Mormolyce Phyllodes	Batocera 21 Arten
Dynastes Hercules	Neolamprima Adolphinae	
Megasoma Elephas	Odontolabis 10 Arten	Goliathus Giganteus
Inca Clathratus	Cladognathus Confucius	Regius
Euchroma Gigantea	Giraffa	und viele andere Goliathiden.
Entimus Imperialis	und viele andere Lucaniden.	Tetralobus Livingstoni
Hypocephalus Armatus	Euchirus Longimanus	Petrognatha Gigas etc. etc.

Auch haben wir **sehr grosse Vorräthe** von europäischen und exotischen **diversen Insecten.** In **Liste V und VI,** (84 Seiten) die ebenfalls mit **vollständigem Gattungsregister** versehen ist, bieten wir an: ca. **2800 Hymenopteren, 1850 Dipteren, 1559 Hemipteren, 540 Neuropteren, 950 Orthopteren** und **240 biologische Objecte.**

Ausserdem **50 sehr empfehlenswerthe Centurien** zu ausserordentlich billigen Preisen. Unter den Europäern sind auch die meisten der bekannteren deutschen Arten aufgeführt, davon viele schädlich, resp. nützlich auftretende Arten. Bei den Exoten bieten wir ausser vielen Arten für Specialisten auch eine **sehr grosse Zahl formenprächtiger Arten** für Liebhaber an, z. B. **Stabheuschrecken** (Phasmiden) viele Arten bis zu den **Riesenexemplaren,** viele **Gottesanbeterinnen** (Mantiden), prachtvolle **Cicaden** und **Laternenträger, Riesenwespen** und **Bienen,** überhaupt aus allen Ordnungen und geben wir bereitwilligst nähere Auskunft.

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	Mark		Mark
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Beste schwarze (lackirte) Nadeln pro 1000	2.—		
do. do. No. 3/0 à Mk. 3, No. 2/0 u. 1/0 à	2.50		
Aechte **Silberdrahtstifte** mit sehr guten Spitzen pro 1000 Mk. 3.—, pro 100	—.40	**Leere Tödtungs-Gläser,** mit Glasröhre im Kork zur Aufnahme des Giftes,	
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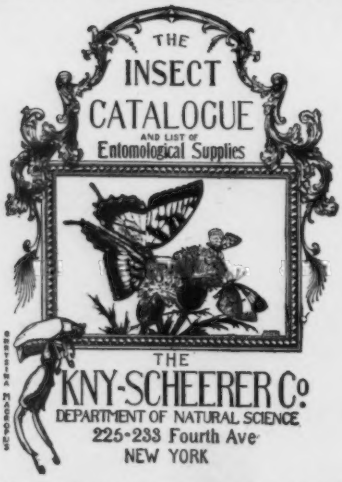

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